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EPA Region 5 Records Ctr.



230473

26 September 2001

Mr. Ronald Murawski, SR-6J
Work Assignment Manager
U.S. Environmental Protection Agency
77 West Jackson Boulevard
Chicago, Illinois 60604-3590

U.S. EPA Contract No.: 68-W7-0026
Work Assignment No.: 136-RXBF-052F
Document Control No.: RFW136-2A-AJHA

Re: Transmittal of HASP
H.O.D Landfill, Antioch, Illinois

Dear Mr. Murawski:

Roy F. Weston, Inc. (WESTON®) is pleased to submit the WESTON HASP for your information.

Should you have any questions or require additional information, please feel free to contact us.

Very truly yours,

ROY F. WESTON, INC.

/s/ Omprakash S. Patel
Site Manager



SITE HEALTH AND SAFETY PLAN (HASP)-FORM 1

Prepared by: Eric Keeley

W.O. Number: 20064— Date: 09/12/01
136—100—

Project Identification

Office: VHI
750 East Bunker Court
Suite 500
Vernon Hills, IL 60061

Site History:

The site consists of 51 acres of landfilled area out of a total 121.5 acres of property that make up the facility. The landfill area is continuous but consists of two separate landfill areas, identified as the "old landfill" and the "new landfill." The old landfill consists of 24.2 acres situated on the western third of the property. The "new landfill" consists of 26.8 acres located immediately east of the "old landfill."

Site Name: H.O.D Landfill Superfund Site
Client: U.S. EPA
Work Location Address: Antioch, Lake County,
Illinois Intersection of
McMillen Road and
Anita Avenue

Scope of Work:

Provide oversight of field operations during long-term response. Weston will provide oversight for field activities including, but not limited to the following tasks:

1. Site visits to the H.O.D. Landfill
2. Oversight to groundwater and surface water sample collections, soil sample collections, leachate level measurement, landfill gas monitoring, fence inspections, landfill cover inspections, leachate and gas collection system operations, etc.
3. Oversight for the installation of groundwater wells at the site.
4. Oversight of redevelopment construction.

Note: WESTON's HASP is based upon the HASP of the PRP, RMP Intergrated Environmental Solutions, Inc. A copy of that HASP is attached herein and is to be observed and treated as part of WESTON's HASP.

☐ Sites visit only; site HASP not necessary. List personnel here and sign off below:

Regulatory Status:

Site regulatory status:

CERCLA/SARA RCRA Other Federal Agency

- | | | |
|--|------------------------------------|------------------------------------|
| <input checked="" type="checkbox"/> U.S. EPA | <input type="checkbox"/> U.S. EPA | <input type="checkbox"/> DOE |
| <input checked="" type="checkbox"/> State | <input type="checkbox"/> State | <input type="checkbox"/> USACE |
| <input checked="" type="checkbox"/> NPL Site | <input type="checkbox"/> NRC | <input type="checkbox"/> Air Force |
| <input type="checkbox"/> OSHA | <input type="checkbox"/> 10 CFR 20 | <input type="checkbox"/> _____ |

☒ Hazard Communication (Req'd See Attachment D)

☒ 1910 ☒ 1926 ☐ State

☒ Safety Officer Manual (Required to be On-Site)

Based on the Hazard Assessment and Regulatory Status, determine the Standard HASP(s) applicable to this project. Indicate below which Standard HASP will be used and append the appropriate pages of this form along with the Standard Plan.

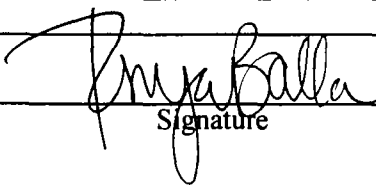
- | | |
|---|--------------------------------|
| <input type="checkbox"/> Stack Test | <input type="checkbox"/> _____ |
| <input type="checkbox"/> Air Emissions | <input type="checkbox"/> _____ |
| <input type="checkbox"/> Asbestos | <input type="checkbox"/> _____ |
| <input type="checkbox"/> Industrial Hygiene | <input type="checkbox"/> _____ |
| <input type="checkbox"/> _____ | <input type="checkbox"/> _____ |

Review and Approval Documentation:

Reviewed by:

SO/DSM/CHS

Tonya Balla
Name (Print)


Signature

Date: 9/26/01

Other

Name (Print)

Signature

Date: _____

Approved by:

Project Manager

Omprakash Patel
Name (Print)

Signature

Date: _____

Hazard Assessment and Equipment Selection:

In accordance with WESTON's Personal Protective Equipment Program and 29 CFR 1910.132, at the site prior to personnel beginning work, the SHSC and/or the Site Manager have evaluated conditions and verified that the personal protective equipment selection outlined within this HASP is appropriate for the hazards known or expected to exist. (Refer to Safety Officer Manual Section 2, Personal Protection Program, for guidance.)

☐ SHSC ☐ Site Manager Date _____

Name (Print)

Signature

Project start date: 09/23/01

This site HASP **must be reissued/reapproved** for any activities conducted after:

Amendment date(s) By:

End date: 04/30/04

Date: 03/23/01

- 1.
- 2.
- 3.
- 4.
- 5.

REVISED 02/1998 WESTON REPRESENTATIVES-FORM 2

Organization/Branch	Name/Title	Address	Telephone
VHI/ Midwest	James Burton / Program Manager	750 East Bunker Court- Suite 500, Vernon Hills, IL 60061	(847) 918-4039
VHI/Midwest	Om Patel / Site Manager	750 East Bunker Court- Suite 500, Vernon Hills, IL 60061	(847) 918-4051
VHI/Midwest	Steve Ryan / Project Engineer	750 East Bunker Court- Suite 500, Vernon Hills, IL 60061	847-918-4131

Roles and Responsibilities: Burton- office management and supervision. Patel & Ryan - On-site supervision of tasks and activities.. Other staff, on site supervision and reporting tasks and activities

WESTON SUBCONTRACTORS

Organization/Branch	Name/Title	Address	Telephone
N/A			

Roles and Responsibilities:

SITE-SPECIFIC HEALTH AND SAFETY PERSONNEL

The Site Health and Safety Coordinator (SHSC) for activities to be conducted at this site is: Om Patel (provisional)

The SHSC has total responsibility for ensuring that the provisions of this Site HASP are adequate and implemented in the field.

Changing field conditions may require decisions to be made concerning adequate protection programs. Therefore, the personnel assigned as SHSCs are experienced and meet the additional training requirements specified by OSHA in 29 CFR 1910.120.

Qualifications: 40 hr OSHA Training Course, 8 hr refresher, and SHSC Course completed. Current Medical , First-Aid CPR

Designated alternates include: Doug Ogilvie, Tonya Balla. Other qualified D-S as necessary.

Revised 2/1998

HEALTH AND SAFETY EVALUATION-FORM 3

Hazard Assessment

Background Review: ☒ Complete ☐ Partial If partial why?

Activities Covered Under This Plan:

No.	Task/Subtask	Description	Schedule
1	Site Visit	Obtain understanding of site and activities	Ongoing
2	Oversight of Monitoring Activities	Oversight to groundwater and surface water sample collections, soil sample collections, leachate level measurement, landfill gas monitoring, fence inspections, landfill cover inspections, leachate and gas collection system operations, etc.	Ongoing
3	Oversight of groundwater well installation	Oversight for the installation of groundwater wells at the site.	Ongoing
4	Oversight of redevelopment construction	Oversight of redevelopment construction activities, including final cover and beneficial use of the site.	Ongoing

Types of Hazards:

1 Numbers refer to one of the following hazard evaluation forms. Complete hazard evaluation forms for each appropriate hazard class.

Physiochemical 1 <input checked="" type="checkbox"/> Flammable <input checked="" type="checkbox"/> Explosive <input checked="" type="checkbox"/> Corrosive <input type="checkbox"/> Reactive <input type="checkbox"/> O ₂ Rich <input checked="" type="checkbox"/> O ₂ Deficient	Chemically Toxic 1 <input checked="" type="checkbox"/> Inhalation <input type="checkbox"/> Carcinogen <input checked="" type="checkbox"/> Ingestion <input type="checkbox"/> Mutagen <input type="checkbox"/> Contact <input type="checkbox"/> Teratogen <input type="checkbox"/> Absorption <input type="checkbox"/> OSHA 1910.1000 Substance (Air Contaminants) <input type="checkbox"/> OSHA Specific Hazard Substance Standard (Refer to following page for listing)	Radiation 3 Ionizing: <input type="checkbox"/> Internal exposure <input type="checkbox"/> External exposure Non-ionizing: <input type="checkbox"/> UV <input type="checkbox"/> IR <input type="checkbox"/> RF <input type="checkbox"/> MicroW <input type="checkbox"/> Laser	Biological 2 <input type="checkbox"/> Etiological Agent <input checked="" type="checkbox"/> Other (plant, insect, animal) <input checked="" type="checkbox"/> Physical Hazards 4 <input checked="" type="checkbox"/> Construction Activities
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Source/Location of Contaminants and Hazardous Substances:

Directly Related to Tasks <input checked="" type="checkbox"/> Air <input type="checkbox"/> Other Surface <input type="checkbox"/> Groundwater	Indirectly Related to Tasks — Nearby Process(es) That Could Affect Team Members: <input type="checkbox"/> Client Facility/WESTON Work Location <input type="checkbox"/> Nearby Non-Client Facility Describe:
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☐ Soil

☐ Surface Water

☐ Sanitary Wastewater

☐ Process Wastewater

☐ Other _____

☐ Have activities (task[s]) been coordinated with facility?

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HEALTH AND SAFETY EVALUATION-CHEMICAL HAZARDS OF CONCERN-FORM 4

☐ N/A

Chemical Contaminants of Concern

Provide the data requested for chemical contaminants on HASP Form 25 or attach data sheets from an acceptable source such as NIOSH pocket guide, condensed chemical dictionary, ACGIH TLV booklet, etc. List chemicals and concentrations below and locate data sheets in Attachment B of this HASP.

☐ N/A

Identify hazardous materials used or on-site and attach Material Safety Data Sheets (MSDSs) for all reagent type chemicals, solutions, or other identified materials that in normal use in performing tasks related to this project could produce hazardous substances. Ensure that all subcontractors and other parties working nearby are informed of the presence of these chemicals and the location of the MSDSs. Obtain from subcontractors and other parties, lists of the hazardous materials they use or have on-site and identify location of the MSDSs here. List chemicals and quantities below and locate MSDSs in Attachment B of this HASP.

Chemical Name	Concentration (if known)	Chemical Name	Quantity
Vinyl Chloride	Unknown	Methane	Unknown
Cadmium	Unknown		
1,2-Dichloroethylene	Unknown		
Hydrogen Sulfide	Unknown		
Lead	Unknown		
Trichloroethylene	Unknown		
Zinc	Unknown		

OSHA-SPECIFIC HAZARDOUS SUBSTANCES

The following substances may require specific medical, training, or monitoring based on concentration or evaluation of risk. See the appropriate citation listed under 29 CFR 1910 or 1926 for additional information.

- | | | | |
|--|--|---|--|
| <input type="checkbox"/> 1910.1001 Asbestos | <input type="checkbox"/> 1910.1002 Coal tar pitch volatiles | <input type="checkbox"/> 1910.1003 4-Nitrobiphenyl, etc. | <input type="checkbox"/> 1910.1004 alpha-Naphthylamine |
| <input type="checkbox"/> 1910.1005 [Reserved] | <input type="checkbox"/> 1910.1006 Methyl chloromethyl ether | <input type="checkbox"/> 1910.1007 3,3'-Dichlorobenzidine (and its salts) | <input type="checkbox"/> 1910.1008 bis-Chloromethyl ether |
| <input type="checkbox"/> 1910.1009 beta-Naphthylamine | <input type="checkbox"/> 1910.1010 Benzidine | <input type="checkbox"/> 1910.1011 4-Aminodiphenyl | <input type="checkbox"/> 1910.1012 Ethyleneimine |
| <input type="checkbox"/> 1910.1013 beta-Propiolactone | <input type="checkbox"/> 1910.1014 2-Acetylaminofluorene | <input type="checkbox"/> 1910.1015 4-Dimethylaminoazobenzene | <input type="checkbox"/> 1910.1016 N-Nitrosodimethylamine |
| <input checked="" type="checkbox"/> 1910.1017 Vinyl chloride | <input type="checkbox"/> 1910.1018 Inorganic arsenic | <input checked="" type="checkbox"/> 1910.1025 Lead (Att. FLD# 46) | <input checked="" type="checkbox"/> 1910.1027 Cadmium |
| <input type="checkbox"/> 1910.1028 Benzene | <input type="checkbox"/> 1910.1029 Coke oven emissions | <input type="checkbox"/> 1910.1043 Cotton dust | <input type="checkbox"/> 1910.1044 1,2-Dibromo-3-chloropropane |
| <input type="checkbox"/> 1910.1045 Acrylonitrile | <input type="checkbox"/> 1910.1047 Ethylene oxide | <input type="checkbox"/> 1910.1048 Formaldehyde | <input type="checkbox"/> 1910.1050 Methyleneedianiline |
| <input type="checkbox"/> 1910.1051 1,3 Butadiene | <input type="checkbox"/> 1910.1052 Methylene chloride | | |

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HEALTH AND SAFETY EVALUATION-2 BIOLOGICAL HAZARDS OF CONCERN-FORM 5

☒ Poisonous Plants (FLD 43)

Location/Task No(s):

Source: ☐ Known ☒ Suspect
 Route of Exposure: ☐ Inhalation ☐ Ingestion
☒ Contact ☐ Direct Penetration

Team Member(s) Allergic: ☐ Yes ☐ No
 Immunization required: ☐ Yes ☒ No

☒ Insects (FLD 43)

Location/Task No(s):

Source: ☐ Known ☒ Suspect
 Route of Exposure: ☐ Inhalation ☐ Ingestion
☒ Contact ☐ Direct Penetration

Team Member(s) Allergic: ☐ Yes ☐ No
 Immunization required: ☐ Yes ☒ No

☒ Snakes, Reptiles (FLD 43)

Location/Task No(s):

Source: ☐ Known ☒ Suspect
 Route of Exposure: ☐ Inhalation ☐ Ingestion
☒ Contact ☒ Direct Penetration

Team Member(s) Allergic: ☐ Yes ☐ No
 Immunization required: ☐ Yes ☒ No

☒ Animals (FLD 43)

Location/Task No(s):

Source: ☐ Known ☒ Suspect
 Route of Exposure: ☐ Inhalation ☐ Ingestion
☒ Contact ☒ Direct Penetration

Team Member(s) Allergic: ☐ Yes ☐ No
 Immunization required: ☐ Yes ☒ No

FLD 43 — WESTON Biohazard Field Operating Procedures: Att. OP ☒

☐ Sewage

Location/Task No(s):

Source: ☐ Known ☐ Suspect
 Route of Exposure: ☐ Inhalation ☐ Ingestion
☐ Contact ☐ Direct Penetration

Team Member(s) Allergic: ☐ Yes ☐ No
 Immunization required: ☐ Yes ☐ No

Tetanus Vaccination within Past 10 yrs: ☐ Yes ☐ No

☐ Etiologic Agents (List)

Location/Task No(s):

Source: ☐ Known ☐ Suspect
 Route of Exposure: ☐ Inhalation ☐ Ingestion
☐ Contact ☐ Direct Penetration

Team Member(s) Allergic: ☐ Yes ☐ No
 Immunization required: ☐ Yes ☐ No

FLD 44 — WESTON Bloodborne Pathogens Exposure Control Plan – First Aid Procedures: Att. OP ☒

FLD 45 — WESTON Bloodborne Pathogens Exposure Control Plan – Working with Infectious Waste: Att. OP ☐

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HEALTH AND SAFETY EVALUATION-3 RADIATION HAZARDS OF CONCERN-FORM 6

NONIONIZING RADIATION

Task No.	Type of Nonionizing Radiation	Source On-Site	TLV/PEL	Wavelength Range	Control Measures	Monitoring Instrument
	Ultraviolet					
	Infrared					
	Radio Frequency					
	Microwave					
	Laser					

IONIZING RADIATION

Task No.	Radionuclide	Major Radiations	Radioactive Half-Life (Years)	DAC ($\mu\text{Ci}/\text{mL}$)			Surface Contamination Limit	Monitoring Instrument
				D	W	Y		

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HEALTH AND SAFETY EVALUATION-4 PHYSICAL HAZARDS OF CONCERN-FORM 7

Phy. Haz. Cond.	Physical Hazard	Attach OP	WESTON OP Titles
Loud noise	Hearing loss/disruption of communication	<input checked="" type="checkbox"/>	FLD01 - Noise Protection
Inclement weather	Rain/humidity/cold/ice/snow/lightning	<input checked="" type="checkbox"/>	FLD02 - Inclement Weather
Steam heat stress	Burns/displaced oxygen/wet working surfaces	<input type="checkbox"/>	FLD03 - Hot Process - Steam
Heat stress	Burns/hot surfaces/low pressure steam	<input type="checkbox"/>	FLD04 - Hot Process - LT3
Ambient heat stress	Heat rash/cramps/exhaustion/heat stroke	<input checked="" type="checkbox"/>	FLD05 - Heat Stress Prevention/Monitoring
Cold stress	Hypothermia/frostbite	<input checked="" type="checkbox"/>	FLD06 - Cold Stress
Cold/wet	Trench/paddy/immersion foot/edema	<input checked="" type="checkbox"/>	FLD07 - Wet Feet
Confined spaces	Falls/burns/drowning/engulfment/electrocution	<input type="checkbox"/>	FLD08 - Confined Space Entry
Explosive vapors	Thermal burns/impaction/dismemberment	<input type="checkbox"/>	FLD09 - Hot Work
Improper lifting	Back strain/abdomen/arm/leg muscle/joint injury	<input checked="" type="checkbox"/>	FLD10 - Manual Lifting/Handling Heavy Objects
Uneven surfaces	Vehicle accidents/slips/trips/falls	<input checked="" type="checkbox"/>	FLD11 - Rough Terrain
Poor housekeeping	Slips/trips/falls/punctures/cuts/fires	<input checked="" type="checkbox"/>	FLD12 - Housekeeping
Structural integrity	Crushing/overhead hazards/compromised floors	<input type="checkbox"/>	FLD13 - Structural Integrity
Hostile persons	Bodily injury	<input checked="" type="checkbox"/>	FLD14 - Site Security
Remote area	Slips/trips/falls/back strain/communication	<input checked="" type="checkbox"/>	FLD15 - Remote Area
Improper cyl. handling	Mechanical injury/fire/explosion/suffocation	<input checked="" type="checkbox"/>	FLD16 - Pressure Systems - Compressed Gases
Water hazards	Poor visibility/entanglement/drowning/cold stress	<input type="checkbox"/>	FLD17 - Diving
Water hazards	Drowning/heat/cold stress/hypothermia/falls	<input type="checkbox"/>	FLD18 - Operation and Use of Boats
Water hazards	Drowning/frostbite/hypothermia/falls/electrocution	<input type="checkbox"/>	FLD19 - Working Over Water
Vehicle hazards	Struck by vehicle/collision	<input checked="" type="checkbox"/>	FLD20 - Traffic
Explosions	Explosion/fire/thermal burns	<input type="checkbox"/>	FLD21 - Explosives
Moving mechanical parts	Crushing/pinch points/overhead hazards/electrocution	<input checked="" type="checkbox"/>	FLD22 - Heavy Equipment Operation
Moving mech. parts	Overhead hazards/electrocution	<input type="checkbox"/>	FLD23 - Cranes/Lifting Equipment Operation
Working at elevation	Overhead hazards/falls/electrocution	<input type="checkbox"/>	FLD24 - Aerial Lifts/Manlifts
Working at elevation	Overhead hazards/falls/electrocution	<input type="checkbox"/>	FLD25 - Working at Elevation
Working at elevation	Overhead hazards/falls/electrocution/slips	<input type="checkbox"/>	FLD26 - Ladders
Working at elevation	Slips/trips/falls/overhead hazards	<input type="checkbox"/>	FLD27 - Scaffolding
Trench cave-in	Crushing/falling/overhead hazards/suffocation	<input checked="" type="checkbox"/>	FLD28 - Excavating/Trenching
Improper material handling	Back injury/crushing from load shifts	<input checked="" type="checkbox"/>	FLD29 - Materials Handling
Physiochemical	Explosions/fires from oxidizing, flam./corr. material	<input checked="" type="checkbox"/>	FLD30 - Hazardous Materials Use/Storage
Physiochemical	Fire and explosion	<input type="checkbox"/>	FLD31 - Fire Prevention/Response Plan Required
Physiochemical	Fire	<input checked="" type="checkbox"/>	FLD32 - Fire Extinguishers Required
Structural integrity	Overhead/electrocution/slips/trips/falls/fire	<input type="checkbox"/>	FLD33 - Demolition
Electrical	Electrocution/shock/thermal burns	<input checked="" type="checkbox"/>	FLD34 - Utilities
Electrical	Electrocution/shock/thermal burns	<input checked="" type="checkbox"/>	FLD35 - Electrical Safety
Burns/fires	Heat stress/fires/burns	<input checked="" type="checkbox"/>	FLD36 - Welding/Cutting/Burning
Impact/thermal	Thermal burns/high pressure impaction/heat stress	<input type="checkbox"/>	FLD37 - High Pressure Washers
Impaction/electrical	Smashing body parts/pinching/cuts/electrocution	<input checked="" type="checkbox"/>	FLD38 - Hand and Power Tools
Poor visibility	Slips/trips/falls	<input checked="" type="checkbox"/>	FLD39 - Illumination
Fire/explosion	Burns/impaction	<input type="checkbox"/>	FLD40 - Storage Tank Removal/Decommissioning
Communications	Disruption of communications	<input checked="" type="checkbox"/>	FLD41 - Std. Hand/Emergency Signals
Energy/release	Unexpected release of energy	<input type="checkbox"/>	FLD42 - Lockout/Tagout
Logging/ground clearing/grubbing activities	Operations associated with felling/moving of trees/brush/logs	<input type="checkbox"/>	FLD47 - Clearing, Grubbing, and Logging Operations
Drilling hazards	Electrocution/overhead hazards/pinch points	<input checked="" type="checkbox"/>	1.6 - Drilling Safety Guide

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TASK-BY-TASK RISK ASSESSMENT-FORM 8

(COMPLETE ONE SHEET FOR EACH TASK)

TASK DESCRIPTION

Task 1- Site Visit - Site visit to obtain conceptual understanding of site

EQUIPMENT REQUIRED/USED

(Be specific, e.g., hand tools, heavy equipment, instruments, PPE)

Steel-toed boots and booties, first-aid, medical kit with bloodborn pathogen kit. Level D PPE with boot covers is required.

POTENTIAL HAZARDS/RISKS

Chemical

☒ Hazard Present

Risk Level: ☐ H ☐ M ☒ L

What justifies risk level?

None anticipated, however, vinyl chloride and landfill gases are suspected. Work expected to be non-intrusive.

Physical

☒ Hazard Present

Risk Level: ☐ H ☐ M ☒ L

What justifies risk level?

Possible slips, trips, and falls on site due to wet soil and uneven ground surfaces. Fall/winter weather may be severe.

Biological

☒ Hazard Present

Risk Level: ☐ H ☐ M ☒ L

What justifies risk level?

Plants growing on site may be poisonous. Insects and animals are likely due to the landfilled areas.

RADIOLOGICAL

☒ Hazard Present

Risk Level: ☐ H ☐ M ☒ L

What justifies risk level?

None anticipated – however, screen with MicroR meter as a precaution, unless areas have already been screened and documented and no hazard is present.

LEVELS OF PROTECTION/JUSTIFICATION

Level D PPE will be worn with only work boots (steel-toed) being required due to the non-contact task. Boot covers are needed in case the soil is wet and slippery.

SAFETY PROCEDURES REQUIRED AND/OR FIELD OPS UTILIZED

Weather appropriate clothing to be worn on site to avoid hypothermia. Any wet spots are to be avoided to lessen the likelihood of falls and hypothermia. Check in/out system to be implemented. For site walk see form 07, excluding FLD OPS 10, 28, 38, and 2.5.

Revised 02/1998

TASK-BY-TASK RISK ASSESSMENT-FORM 8

(COMPLETE ONE SHEET FOR EACH TASK)

TASK DESCRIPTION

Task 2 - Oversight to groundwater and surface water sample collections, soil sample collections, leachate level measurement, landfill gas monitoring, fence inspections, landfill cover inspections, leachate and gas collection system operations, etc.

EQUIPMENT REQUIRED/USED

(Be specific, e.g., hand tools, heavy equipment, instruments, PPE)

Steel-toed boots and booties, first-aid, medical kit with bloodborn pathogen kit. Level D PPE with boot covers is required.

POTENTIAL HAZARDS/RISKS

Chemical

☒ Hazard Present Risk Level: ☐ H ☐ M ☒ L

What justifies risk level? Minimal anticipated, however, vinyl chloride and landfill gases are suspected. WESTON to be acting in oversight role only. WESTON will not conduct any intrusive work.

Physical

☒ Hazard Present Risk Level: ☐ H ☐ M ☒ L

What justifies risk level?

Possible slips, trips, and falls on site due to wet soil and uneven ground surfaces. Fall/winter weather may be severe.

Biological

☒ Hazard Present Risk Level: ☐ H ☐ M ☒ L

What justifies risk level?

Plants growing on site may be poisonous. Insects and animals are likely due to the landfilled areas.

RADIOLOGICAL

☒ Hazard Present Risk Level: ☐ H ☐ M ☒ L

What justifies risk level?

None anticipated – however, screen with MicroR meter as a precaution, unless areas have already been screened and documented and no hazard is present.

LEVELS OF PROTECTION/JUSTIFICATION

Level D PPE will be worn with only work boots (steel-toed) being required due to the non-contact task. Boot covers are needed in case the soil is wet and slippery.

SAFETY PROCEDURES REQUIRED AND/OR FIELD OPS UTILIZED

Weather appropriate clothing to be worn on site to avoid hypothermia. Any wet spots are to be avoided to lessen the likelihood of falls and hypothermia. Check in/out system to be implemented. For site walk see form 07, excluding FLD OPS 10, 28, 38, and 2.5.

TASK-BY-TASK RISK ASSESSMENT-FORM 8

(COMPLETE ONE SHEET FOR EACH TASK)

TASK DESCRIPTION

Task 3 - Oversight for the installation of groundwater wells at the site.

EQUIPMENT REQUIRED/USED

(Be specific, e.g., hand tools, heavy equipment, instruments, PPE)

Steel-toed boots and booties, first-aid, medical kit with bloodborn pathogen kit. Level D PPE with boot covers is required.

POTENTIAL HAZARDS/RISKS

Chemical

☒ Hazard Present

Risk Level: ☐ H ☐ M ☒ L

What justifies risk level? Minimal anticipated, however, vinyl chloride and landfill gases are suspected

Physical

☒ Hazard Present

Risk Level: ☐ H ☐ M ☒ L

What justifies risk level?

Possible slips, trips, and falls on site due to wet soil and uneven ground surfaces. Drilling operation on site. Fall/winter weather may be severe. Spring and summer weather may have intense heat.

Biological

☒ Hazard Present

Risk Level: ☐ H ☐ M ☒ L

What justifies risk level?

Plants growing on site may be poisonous. Insects and animals are likely due to the landfilled areas.

RADIOLOGICAL

☒ Hazard Present

Risk Level: ☐ H ☐ M ☒ L

What justifies risk level?

None anticipated – however, screen with MicroR meter as a precaution, unless areas have already been screened and documented and no hazard is present.

LEVELS OF PROTECTION/JUSTIFICATION

Level D PPE will be worn with only work boots (steel-toed) being required due to the non-contact task. Boot covers are needed in case the soil is wet and slippery.

SAFETY PROCEDURES REQUIRED AND/OR FIELD OPS UTILIZED

Weather appropriate clothing to be worn on site to avoid hypothermia. Any wet spots are to be avoided to lessen the likelihood of falls and hypothermia. Check in/out system to be implemented. For site walk see form 07, excluding FLD OPS 10, 28, 38, and 2.5.

TASK-BY-TASK RISK ASSESSMENT-FORM 8

(COMPLETE ONE SHEET FOR EACH TASK)

TASK DESCRIPTION

Task 4 - Oversight of redevelopment construction activities, including final cover and beneficial use of the site.

EQUIPMENT REQUIRED/USED

(Be specific, e.g., hand tools, heavy equipment, instruments, PPE)

Steel-toed boots and booties, first-aid, medical kit with bloodborn pathogen kit. Level D PPE with boot covers is required.

POTENTIAL HAZARDS/RISKS

Chemical

☒ Hazard Present Risk Level: ☐ H ☐ M ☒ L

What justifies risk level? Minimal anticipated, however, vinyl chloride and landfill gases are suspected. Work expected to be non-intrusive.

Physical

☒ Hazard Present Risk Level: ☐ H ☐ M ☒ L

What justifies risk level?

Possible slips, trips, and falls on site due to wet soil and uneven ground surfaces. Drilling operation on site. Fall/winter weather may be severe. Spring and summer weather may have intense heat.

Biological

☒ Hazard Present Risk Level: ☐ H ☐ M ☒ L

What justifies risk level?

Plants growing on site may be poisonous. Insects and animals are likely due to the landfilled areas.

RADIOLOGICAL

☒ Hazard Present Risk Level: ☐ H ☐ M ☒ L

What justifies risk level?

None anticipated – however, screen with MicroR meter as a precaution, unless areas have already been screened and documented and no hazard is present.

LEVELS OF PROTECTION/JUSTIFICATION

Level D PPE will be worn with only work boots (steel-toed) being required due to the non-contact task. Boot covers are needed in case the soil is wet and slippery.

SAFETY PROCEDURES REQUIRED AND/OR FIELD OPS UTILIZED

Weather appropriate clothing to be worn on site to avoid hypothermia. Any wet spots are to be avoided to lessen the likelihood of falls and hypothermia. Check in/out system to be implemented. For site walk see form 07, excluding FLD OPS 10, 28, 38, and 2.5.

PERSONNEL PROTECTION PLAN-FORM 9

Engineering Controls

Describe Engineering Controls used as part of Personnel Protection Plan:

Task(s)

1 None anticipated
 234 None anticipated. Remediation contractor to provide all Eng. Controls. WESTON reserves the right to add Eng. Controls if needed or present ones are inadequate.

Administrative Controls

Describe Administrative Controls used as part of Personnel Protection Plan:

Task(s)

1234 Site Control Zones/work upwind where possible
 1234 Adhere to WESTON HASP including written Respiratory Protection and PPE Programs

Personal Protective Equipment

Action Levels for Changing Levels of Protection. Refer to HASP Form 13, Site Air Monitoring Program—Action Levels. Define Action Levels for up or down grade for each task:

Task(s)

1234 Level D expected, boot covers and ear plugs as warranted

DESCRIPTION OF LEVELS OF PROTECTION

Level D	Level D Modified
<p>Task(s):</p> <div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <input checked="" type="checkbox"/> Head <input checked="" type="checkbox"/> Eye and Face <input checked="" type="checkbox"/> Hearing <input type="checkbox"/> Arms and Legs Only <input checked="" type="checkbox"/> Appropriate Work Uniform <input type="checkbox"/> Hand - Gloves <input checked="" type="checkbox"/> Foot - Safety Boots <input type="checkbox"/> Fall Protection <input type="checkbox"/> Flotation <input type="checkbox"/> Other </div> <div style="width: 45%;"> <p>Hard hat as required</p> <p>Safety glasses as warranted</p> <p>Weather</p> <p>Steel-toed boots & booties as warranted</p> </div> </div>	<p>Task(s):</p> <div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <input type="checkbox"/> Head <input type="checkbox"/> Eye and Face <input type="checkbox"/> Hearing <input type="checkbox"/> Arms and Legs Only <input type="checkbox"/> Whole Body <input type="checkbox"/> Apron <input type="checkbox"/> Hand - Gloves <input checked="" type="checkbox"/> Gloves <input type="checkbox"/> Gloves <input type="checkbox"/> Foot - Safety Boots <input type="checkbox"/> Over Boots </div> <div style="width: 45%;"> <p>Nitrile</p> </div> </div>

DESCRIPTION OF LEVELS OF PROTECTION-FORM 10	
Level C	Level B
Task(s): <input checked="" type="checkbox"/> Head <input type="checkbox"/> Eye and Face <input type="checkbox"/> Hearing <input type="checkbox"/> Arms and Legs Only <input type="checkbox"/> Whole Body <input type="checkbox"/> Apron <input type="checkbox"/> Hand - Gloves <input type="checkbox"/> Gloves <input type="checkbox"/> Gloves <input type="checkbox"/> Foot - Safety Boots <input type="checkbox"/> Outer Boots <input type="checkbox"/> Boots (Other) <hr/> <input type="checkbox"/> Half Face <input type="checkbox"/> Cart./Canister <input type="checkbox"/> Full Face <input type="checkbox"/> Cart./Canister <input type="checkbox"/> PAPR <input type="checkbox"/> Cart./Canister <input type="checkbox"/> Type C <input type="checkbox"/> Fall Protection <input type="checkbox"/> Flotation <input type="checkbox"/> Other	Task(s): <input type="checkbox"/> Head <input type="checkbox"/> Eye and Face <input type="checkbox"/> Hearing <input type="checkbox"/> Arms and Legs Only <input type="checkbox"/> Whole Body <input type="checkbox"/> Apron <input type="checkbox"/> Hand - Gloves <input type="checkbox"/> Gloves <input type="checkbox"/> Gloves <input type="checkbox"/> Foot - Safety Boots <input type="checkbox"/> Outer Boots <input type="checkbox"/> Boots (Other) <hr/> <input type="checkbox"/> SAR - Airline <input type="checkbox"/> SCBA <input type="checkbox"/> Comb. Airline/SCBA <input type="checkbox"/> Cascade System <input type="checkbox"/> Compressor <input type="checkbox"/> Fall Protection <input type="checkbox"/> Flotation <input type="checkbox"/> Other

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SITE OR PROJECT HAZARD MONITORING PROGRAM-FORM 11

Air Monitoring Instruments

Instrument Selection and Initial Check Record

Reporting Format: ☒ Field Notebook ☐ Field Data Sheets* ☐ Air Monitoring Log ☐ Trip Report ☐ Other

Instrument	Task No.(s)	Number Required	Number Received	Checked Upon Receipt	Comment	Initials
<input type="checkbox"/> CGI				<input type="checkbox"/>		
<input type="checkbox"/> O ₂				<input type="checkbox"/>		
<input type="checkbox"/> CGI/O ₂				<input type="checkbox"/>		
<input type="checkbox"/> CGI/O ₂ /tox-PPM, H ₂ S, H ₂ S/CO				<input type="checkbox"/>		
<input type="checkbox"/> RAD				<input type="checkbox"/>		
<input type="checkbox"/> GM (Pancake)				<input type="checkbox"/>		
<input type="checkbox"/> NaI (Micro R)				<input type="checkbox"/>		
<input type="checkbox"/> ZnS (Alpha Scintillator)				<input type="checkbox"/>		
<input type="checkbox"/> Other _____				<input type="checkbox"/>		
<input type="checkbox"/> PID				<input type="checkbox"/>		
<input type="checkbox"/> HNu 10.2				<input type="checkbox"/>		
<input type="checkbox"/> HNu 11.7				<input type="checkbox"/>		
<input type="checkbox"/> Photovac, TMA				<input type="checkbox"/>		
<input type="checkbox"/> OVM				<input type="checkbox"/>		
<input type="checkbox"/> Other _____				<input type="checkbox"/>		
<input type="checkbox"/> FID				<input type="checkbox"/>		
<input type="checkbox"/> Fox 128				<input type="checkbox"/>		
<input type="checkbox"/> Heath, AID, Other				<input type="checkbox"/>		
<input type="checkbox"/> RAM, Mini-RAM, Other _____				<input type="checkbox"/>		
<input type="checkbox"/> Monitox				<input type="checkbox"/>		
Specify: _____				<input type="checkbox"/>		
<input type="checkbox"/> Personal Sampling				<input type="checkbox"/>		
Specify: _____				<input type="checkbox"/>		
<input type="checkbox"/> Bio-Aerosol Monitor				<input type="checkbox"/>		
<input type="checkbox"/> Pump - MSA, Dräger, Sensidyne				<input type="checkbox"/>		
<input type="checkbox"/> Tubes/type: _____				<input type="checkbox"/>		
<input type="checkbox"/> Tubes/type: _____				<input type="checkbox"/>		
<input type="checkbox"/> Other _____				<input type="checkbox"/>		

*Refer to Attachment E.

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SITE OR PROJECT HAZARD MONITORING PROGRAM-FORM 12

Air Monitoring Instruments Calibration Record

[illegible]

Revised 02/1998

SITE AIR MONITORING PROGRAM-FORM 13

Action Levels

These Action Levels, if not defined by regulation, are some percent (usually 50%) of the applicable PEL/TLV/REL. That number must also be adjusted to account for instrument response factors.

	Tasks	Action Level		Action
<input type="checkbox"/> Explosive atmosphere		Ambient Air Concentration	Confined Space Concentration	
		<10% LEL 10 to 25% LEL >25% LEL	0 to 1% LEL 1 to 10% LEL >10% LEL	Work may continue. Consider toxicity potential. Work may continue. Increase monitoring frequency. Work must stop. Ventilate area before returning.
<input type="checkbox"/> Oxygen		Ambient Air Concentration	Confined Space Concentration	
		<19.5% O ₂ 19.5% to 25% O ₂ >25% O ₂	<19.5% O ₂ 19.5% to 23.5% O ₂ >23.5% O ₂	Leave area. Re-enter only with self-contained breathing apparatus. Work may continue. Investigate changes from 21%. Work must stop. Ventilate area before returning.
<input type="checkbox"/> Radiation		< 3 times background 3 times background to < 1 mR/hour > 1 mrem/hour		Continue work. Radiation above background levels (normally 0.01-0.02 mR/hr) signifies possible radiation source(s) present. Continue investigation with caution. Perform thorough monitoring. Consult with a Health Physicist. Potential radiation hazard. Evacuate site. Continue investigation only upon the advice of Health Physicist.
<input type="checkbox"/> Organic gases and vapors				
<input type="checkbox"/> Inorganic gases, vapors, and particulates				

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CONTINGENCIES-FORM 14

Emergency Contacts and Phone Numbers

Agency	Contact	Phone Number
Local Medical Emergency Facility (LMF)	St. Theresa Area Treatment Satellite	847-356-6600
WESTON Medical Emergency Contact	Continuum EMR - Dr. Elyane Theriault	1-800-229-3674
WESTON Health and Safety	Corporate Health and Safety	(610) 701-3000
Fire Department	Dispatcher	911
Police Department	Dispatcher	911
On-Site Coordinator- SHSC	TBD	TBD
Client Site Contact	TBD	TBD
Site Telephone	WESTON cell phone	TBD
Nearest Telephone	WESTON cell phone	TBD

Local Medical Emergency Facility(s)

Name of Hospital: St. Theresa Ara Treatmetn Satelite

Address: 37809 North Route 59 Lake Villa, IL 60046

Phone No.: 847-356-6600

Name of Contact: Receptionist/Emergency Room

Phone No.: 911

Type of Service:

- ☐ Physical trauma only
☐ Chemical exposure only
☒ Physical trauma and chemical exposure
☐ Available 24 hours

Route to Hospital (written detail):

Take McMillan Road south to 173 west (right) to Route 59 south (left) approximately 4.5 miles to St. Therese Area Treatment Sattelite on the east (left) side of Route 59 just south of Route 132 (Grand Avenue).

Travel time from site:

15 Minutes

Distance to hospital:

5.1 miles

Name/no. of 24-hr ambulance service:
Local service / 911

Secondary or Specialty Service Provider

Name of Hospital: St. Theresa Medical Center

Address: 2615 Washington Waukegan, IL 60085

Phone No.: 847-249-3900

Name of Contact: Receptionist/Emergency Room

Phone No.: 911

Type of Service:

- ☐ Physical trauma only
☐ Chemical exposure only
☒ Physical trauma and chemical exposure
☒ Available 24 hours

Route to Hospital (written detail):

South on McMillen Road, left onto IL-173, right on N US-41/Skokie Hwy, Take Washington Street exit on the right. Turn east onto Washington Street. The Hospital is 1.6 miles at on Washington Street.

Travel time from site:

28 minutes

Distance to hospital:

17.9 miles

Name/no. of 24-hr ambulance service:
local service / 911



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now!

Find: A Loan for Me Powered by GetSmart®

Refinancing	Second Mortgage	Debt Consolidation
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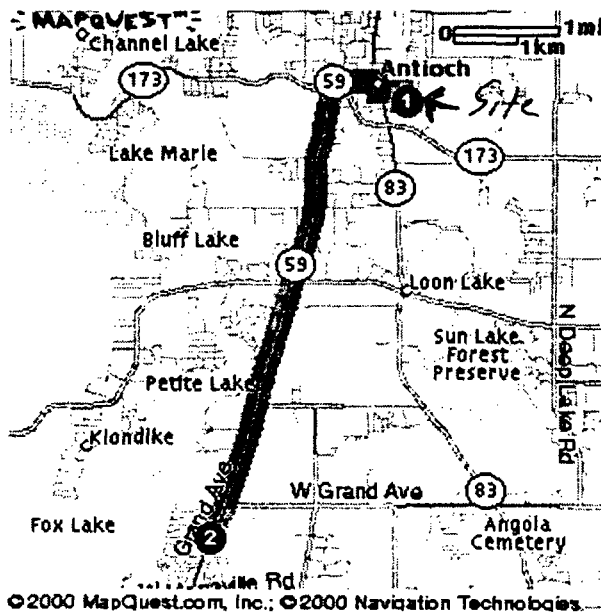
[Create My Locations](#) - [Sign I](#)

Yahoo! Maps - Driving Directions

Site: Starting from: McMillen Road and Anita Ave, Antioch, IL 60002
St. Theresa Treatment Arriving at: ★ 37809 North Route 59, Lake Villa, IL 60046
Satellite Distance: 5.6 miles Approximate Travel Time: 10 mins

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- [Get Reverse Directions](#)
- [Text Only Driving Directions](#)

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Full Route



Destination

Directions

- | | Miles |
|--|-------|
| 1. Start out going Northwest on GAIL ST towards IDA AVE. | 0.2 |
| 2. Turn LEFT onto IDA AVE. | 0.2 |
| 3. Turn RIGHT onto IL-83. | 0.1 |
| 4. Turn LEFT onto LAKE ST/IL-59. | 0.4 |
| 5. Stay straight to go onto IL-59. | 4.4 |
| 6. IL-59 becomes IL-59/GRAND AVE/IL-132. | 0.4 |



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Yahoo! Maps - Driving Directions

Starting from: McMillen Road and Anita Ave, Antioch, IL 60002

Arriving at: ★ 2615 Washington, Waukegan, IL 60085-4980

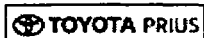
Distance: 17.8 miles

Approximate Travel Time: 30 mins

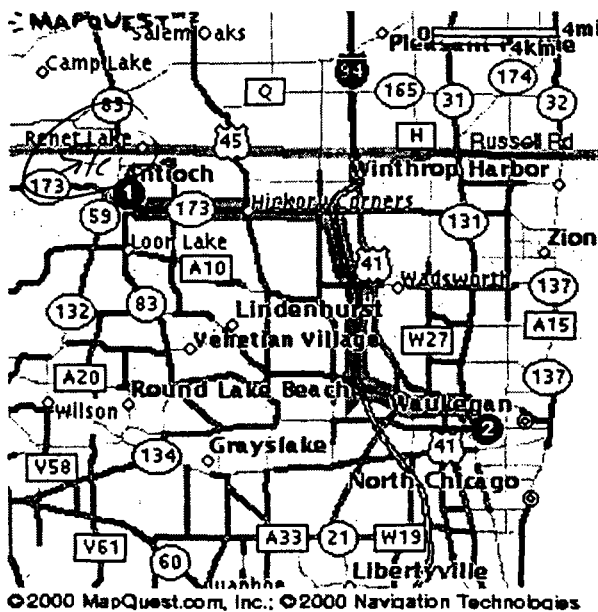
[Email Directions](#)

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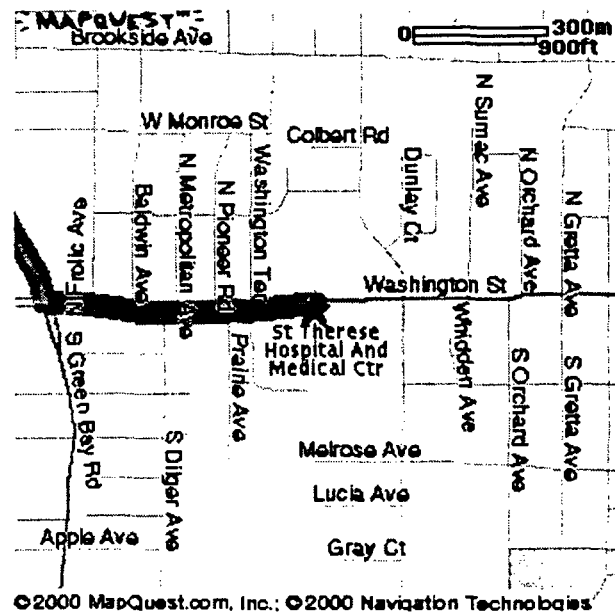
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Full Route



Destination

Directions

1. Start out going Southeast on **MCMILLEN RD** towards **RAM RD**.
2. Turn **LEFT** onto **IL-173**.
3. **IL-173** becomes **IL-173/ROSECRANS RD**.
4. Take the **I-94 SOUTH/TRI-STATE TOLLWAY** ramp towards **INDIANA**.
5. Merge onto **I-94 E** (Portions toll).
6. Take the **IL-132 EAST/GRAND AVE** exit.

Miles

0.4
3.6
2.6
0.3
5.7
0.3

(Continued)

(Continued)

- | | |
|--|-----|
| 7. Merge onto GRAND AVE/IL-132. | 1.6 |
| 8. Stay straight to go onto IL-132/1ST PL. | 0.6 |
| 9. IL-132/1ST PL becomes IL-132/GRAND AVE. | 1.3 |
| 10. Turn RIGHT onto N GREEN BAY RD/IL-131. | 0.9 |
| 11. Turn LEFT onto WASHINGTON ST. | 0.4 |

When using any driving directions or map, it's a good idea to do a reality check and make sure the road still exists, watch out for construction, and follow all traffic safety precautions. This is only to be used as an aid in planning.

Driving Directions

New Location

1 Enter a starting address
or select from My Locations

2 Enter a destination address
or select from My Locations

My Locations [Sign In](#)

(Address, Intersection or Airport Code)

Address

City, State or Zip

Country

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Address

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CONTINGENCIES-FORM 16

Response Plans

Medical - General Provide first aid, if trained; assess and determine need for further medical assistance. Transport or arrange for transport after appropriate decontamination.	First Aid Kit:	Type Basic and BBP	Location WESTON vehicle or contractor's vehicle	Special First-Aid Procedures: Cyanides on-site <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If yes, contact LMF. Do they have antidote kit? <input type="checkbox"/> Yes <input type="checkbox"/> No
	Eyewash required <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Type Eyewash bottle	Location WESTON vehicle	HF on-site <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If yes, need neutralizing ointment for first-aid kit. Contact LMF.
	Shower required <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Type	Location	

Plan for Response to Spill/Release		Plan for Response to Fire/Explosion		Fire Extinguishers
In the event of a spill or release, ensure safety, assess situation, and perform containment and control measures, as appropriate.	a. Cleanup per MSDSs if small; or sound alarm, call for assistance, notify Emergency Coordinator b. Evacuate to pre-determined safe place c. Account for personnel d. Determine if team can respond safely e. Mobilize per Site Spill Response Plan	In the event of a fire or explosion, ensure personal safety, assess situation, and perform containment and control measures, as appropriate:	a. Sound alarm and call for assistance, notify Emergency Coordinator b. Evacuate to predetermined safe place c. Account for personnel d. Use fire extinguisher <u>only if safe and trained</u> in its use e. Stand by to inform emergency responders of materials and conditions	Type/Location ABC/Weston vehicle / / / / /

Description of Spill Response Gear	Location	Description (Other Fire Response Equipment)	Location

Plan to Respond to Security Problems Avoid confrontation. Call 911			

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DECONTAMINATION PLAN-FORM 17

Personnel Decontamination

Consistent with the levels of protection required, step-by-step procedures for personnel decontamination for each level of protection are attached.

Levels of Protection Required for Decontamination Personnel

The levels of protection required for personnel assisting with decontamination will be:

☐

Level B

☐

Level C

☒

Level D

Modifications include:

Disposition of Decontamination Wastes

Provide a description of waste disposition, including identification of storage area, hauler, and final disposal site, if applicable:

Decontamination wastes such as PPE will be suitably containerized and disposed off property. Any solid waste will be put into garbage bags and disposed of with regular garbage. All disposal will be in accordance with applicable regulations.

Equipment Decontamination

A procedure for decontamination steps required for non-sampling equipment and heavy machinery follows:

A procedure for decontamination steps required for non-sampling equipment and heavy machinery follows: If any equipment is used and becomes contaminated, dirt and debris will be removed by scraping and brushing. Rinse off and air dry equipment prior to removing from site.

Sampling Equipment Decontamination

Sampling equipment will be decontaminated in accordance with the following procedure:

WESTON not performing any sampling activities.

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LEVEL D/MODIFIED LEVEL D DECONTAMINATION PLAN-FORM 18

Check indicated functions or add steps, as necessary:

Function	Description of Process, Solution, and Container
----------	---

- | | |
|--|--|
| <input type="checkbox"/> Segregated equipment drop | |
| <input type="checkbox"/> Boot cover and glove wash | |
| <input type="checkbox"/> Boot cover and glove rinse | |
| <input type="checkbox"/> Tape removal - outer glove and boot | |
| <input type="checkbox"/> Boot cover removal | |
| <input type="checkbox"/> Outer glove removal | |

HOTLINE

- | | |
|---|--|
| <input type="checkbox"/> Suit/safety boot wash | |
| <input type="checkbox"/> Suit/boot/glove rinse | |
| <input type="checkbox"/> Safety boot removal | |
| <input type="checkbox"/> Suit removal | |
| <input type="checkbox"/> Inner glove wash | |
| <input type="checkbox"/> Inner glove rinse | |
| <input type="checkbox"/> Inner glove removal | |
| <input type="checkbox"/> Inner clothing removal | |

CONTAMINATION REDUCTION ZONE (CRZ)/SAFE ZONE BOUNDARY

- | | |
|-------------------------------------|--|
| <input type="checkbox"/> Field wash | |
| <input type="checkbox"/> Redress | |

Disposal Plan, End of Day:

Disposal Plan, End of Week:

Disposal Plan, End of Project:

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LEVEL C DECONTAMINATION PLAN-FORM 19

Check indicated functions or add steps, as necessary:

Function

Description of Process, Solution, and Container

- ☐ Segregated equipment drop
- ☐ Boot cover and glove wash
- ☐ Boot cover and glove rinse
- ☐ Tape removal - outer glove and boot
- ☐ Boot cover removal
- ☐ Outer glove removal

HOTLINE

- ☐ Suit/safety boot wash
- ☐ Suit/boot/glove rinse
- ☐ Safety boot removal
- ☐ Suit removal
- ☐ Inner glove wash
- ☐ Inner glove rinse
- ☐ Facepiece removal
- ☐ Inner glove removal
- ☐ Inner clothing removal

CONTAMINATION REDUCTION ZONE (CRZ)/SAFE ZONE BOUNDARY

- ☐ Field wash
- ☐ Redress

Disposal Plan, End of Day:

Disposal Plan, End of Week:

Disposal Plan, End of Project:

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LEVEL B DECONTAMINATION PLAN-FORM 20

Check indicated functions or add steps, as necessary:

Function

Description of Process, Solution, and Container

- ☐ Segregated equipment drop
- ☐ Boot cover and glove wash
- ☐ Boot cover and glove rinse
- ☐ Tape removal - outer glove and boot
- ☐ Boot cover removal
- ☐ Outer glove removal

HOTLINE

- ☐ Suit/safety boot wash
- ☐ Suit/SCBA/boot/glove rinse
- ☐ Safety boot removal
- ☐ Remove SCBA backpack without disconnecting
- ☐ Splash suit removal
- ☐ Inner glove wash
- ☐ Inner glove rinse
- ☐ SCBA disconnect and facepiece removal
- ☐ Inner glove removal
- ☐ Inner clothing removal

CONTAMINATION REDUCTION ZONE (CRZ)/SAFE ZONE BOUNDARY

- ☐ Field wash
- ☐ Redress

Disposal Plan, End of Day:

Disposal Plan, End of Week:

Disposal Plan, End of Project:

revised 02/1998

SITE PERSONNEL AND CERTIFICATION STATUS-FORM 21

WESTON

Name: Om Patel Title: Site Manager Task(s): 1,2,3,4 Certification Level or Description: D-S <input type="checkbox"/> Medical Current <input checked="" type="checkbox"/> Training Current <input type="checkbox"/> Fit Test Current (Qual.) <input type="checkbox"/> Fit Test Current (Quant.)	Name: Steve Ryan Title: Project Engineer Task(s): 1234 Certification Level or Description: D-S <input checked="" type="checkbox"/> Medical Current <input checked="" type="checkbox"/> Training Current <input type="checkbox"/> Fit Test Current (Qual.) <input type="checkbox"/> Fit Test Current (Quant.)
Name: Doug Oglive Title: Scientist Task(s): 1234 Certification Level or Description: D-S <input checked="" type="checkbox"/> Medical Current <input checked="" type="checkbox"/> Training Current <input type="checkbox"/> Fit Test Current (Qual.) <input type="checkbox"/> Fit Test Current (Quant.)	Name: Brennan Scafer Title: Geologist Task(s): 234 Certification Level or Description: D-S <input checked="" type="checkbox"/> Medical Current <input checked="" type="checkbox"/> Training Current <input type="checkbox"/> Fit Test Current (Qual.) <input type="checkbox"/> Fit Test Current (Quant.)
Name: Joe Ruiz Title: Geologist Task(s): 234 Certification Level or Description: D-S <input checked="" type="checkbox"/> Medical Current <input checked="" type="checkbox"/> Training Current <input type="checkbox"/> Fit Test Current (Qual.) <input type="checkbox"/> Fit Test Current (Quant.)	Name: Yoshie Hagiwarn Title: Geologist Task(s): 234 Certification Level or Description: D-S <input checked="" type="checkbox"/> Medical Current <input checked="" type="checkbox"/> Training Current <input type="checkbox"/> Fit Test Current (Qual.) <input type="checkbox"/> Fit Test Current (Quant.)
Name: Title: Task(s): Certification Level or Description: <input type="checkbox"/> Medical Current <input type="checkbox"/> Training Current <input type="checkbox"/> Fit Test Current (Qual.) <input type="checkbox"/> Fit Test Current (Quant.)	Name: Title: Task(s): Certification Level or Description: <input type="checkbox"/> Medical Current <input type="checkbox"/> Training Current <input type="checkbox"/> Fit Test Current (Qual.) <input type="checkbox"/> Fit Test Current (Quant.)
Name: Title: Task(s): Certification Level or Description: <input type="checkbox"/> Medical Current <input type="checkbox"/> Training Current <input type="checkbox"/> Fit Test Current (Qual.) <input type="checkbox"/> Fit Test Current (Quant.)	Name: Title: Task(s): Certification Level or Description: <input type="checkbox"/> Medical Current <input type="checkbox"/> Training Current <input type="checkbox"/> Fit Test Current (Qual.) <input type="checkbox"/> Fit Test Current (Quant.)
Name: Title: Task(s): Certification Level or Description: <input type="checkbox"/> Medical Current <input type="checkbox"/> Training Current <input type="checkbox"/> Fit Test Current (Qual.) <input type="checkbox"/> Fit Test Current (Quant.)	Name: Title: Task(s): Certification Level or Description: <input type="checkbox"/> Medical Current <input type="checkbox"/> Training Current <input type="checkbox"/> Fit Test Current (Qual.) <input type="checkbox"/> Fit Test Current (Quant.)

TRAINING CURRENT - Training: All personnel, including visitors, entering the exclusion or contamination reduction zones must have certifications of completion of training in accordance with OSHA 29 CFR 1910, 29 CFR 1926, or 29 CFR 1910.120.

FIT TEST CURRENT - Respirator Fit Testing: All persons, including visitors, entering any area requiring the use or potential use of any negative pressure respirator must have had, as a minimum, a qualitative fit test, administered in accordance with OSHA 29 CFR 1910.134 or ANSI, within the last 12 months. If site conditions require the use of a full-face, negative-pressure, air-purifying respirator for protection from asbestos or lead, employees must have had a qualitative fit test, administered according to OSHA 29 CFR 1910.1001 or 1025/1926, within the last 6 months.

MEDICAL CURRENT - Medical Monitoring Requirements: All personnel, including visitors, entering the exclusion or contamination reduction zones must be certified as medically fit to work and to wear a respirator, if appropriate, in accordance with 29 CFR 1910, 29 CFR 1926/1910, or 29 CFR 1910.120.

The Site Health and Safety Coordinator is responsible for verifying all certifications and fit tests.

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SITE PERSONNEL AND CERTIFICATION STATUS-FORM 22

Subcontractor's Health and Safety Program Evaluation

Name of Subcontractor: N/A
Address:

Activities To Be Conducted by Subcontractor:

Evaluation Criteria

Medical program meets OSHA/WESTON criteria

- ☐ Acceptable
☐ Unacceptable

Comments:

Personal protective equipment available

- ☐ Acceptable
☐ Unacceptable

Comments:

On-site monitoring equipment available, calibrated, and operated properly

- ☐ Acceptable
☐ Unacceptable

Comments:

Safe working procedures clearly specified

- ☐ Acceptable
☐ Unacceptable

Comments:

Training meets OSHA/WESTON criteria

- ☐ Acceptable
☐ Unacceptable

Comments:

Emergency procedures

- ☐ Acceptable
☐ Unacceptable

Comments:

Decontamination procedures

- ☐ Acceptable
☐ Unacceptable

Comments:

General health and safety program evaluation

- ☐ Acceptable
☐ Unacceptable

Comments:

Additional comments:

- ☐ Subcontractor has agreed to and will conform with the WESTON HASP for this project.
☐ Subcontractor will work under his own HASP, which has been accepted by project PM.

Evaluation Conducted by:

Date:

Subcontractor

Name:

Title:

Task(s):

Certification Level or Description:

- ☐ Medical Current ☐ Training Current
☐ Fit Test Current (Qual.) ☐ Fit Test Current (Quant.)

Name:

Title:

Task(s):

Certification Level or Description:

- ☐ Medical Current ☐ Training Current
☐ Fit Test Current (Qual.) ☐ Fit Test Current (Quant.)

Name:

Title:

Task(s):

Certification Level or Description:

- ☐ Medical Current ☐ Training Current
☐ Fit Test Current (Qual.) ☐ Fit Test Current (Quant.)

Name:

Title:

Task(s):

Certification Level or Description:

- ☐ Medical Current ☐ Training Current
☐ Fit Test Current (Qual.) ☐ Fit Test Current (Quant.)

Name:

Title:

Task(s):

Certification Level or Description:

- ☐ Medical Current ☐ Training Current
☐ Fit Test Current (Qual.) ☐ Fit Test Current (Quant.)

Name:

Title:

Task(s):

Certification Level or Description:

- ☐ Medical Current ☐ Training Current
☐ Fit Test Current (Qual.) ☐ Fit Test Current (Quant.)

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HEALTH AND SAFETY PLAN APPROVAL/SIGNOFF FORM-FORM 23	
Site Name: H.O.D. Landfill, Antioch, Lake County, Illinois	WO#: 00000—020—064—1361—00
Address: Intersection of McMillen Road and Anita Avenue in Antioch.	
I understand, agree to, and will conform with the information set forth in this Health and Safety Plan (and attachments) and discussed in the personnel health and safety briefing(s).	

WO#: 00000-020-064-1361-00

I understand, agree to, and will conform with the information set forth in this Health and Safety Plan (and attachments) and discussed in the personnel health and safety briefing(s).

Date _____

[illegible]

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TRAINING AND BRIEFING TOPICS-FORM 24

The following items will be covered at the site-specific training meeting, daily or periodically.

<input checked="" type="checkbox"/> Site characterization and analysis, Sec. 3.0, 29 CFR 1910.120 I	<input type="checkbox"/> Level A
<input checked="" type="checkbox"/> Physical hazards, HASP Form 07	<input type="checkbox"/> Level B
<input checked="" type="checkbox"/> Chemical hazards, HASP Form 04	<input type="checkbox"/> Level C
<input checked="" type="checkbox"/> Animal bites, stings, and poisonous plants	<input checked="" type="checkbox"/> Level D
<input type="checkbox"/> Etiologic (infectious) agents	<input type="checkbox"/> Monitoring, 29 CFR 1910.120 (h)
<input checked="" type="checkbox"/> Site control, 29 CFR 1910.120 d	<input checked="" type="checkbox"/> Decontamination, 29 CFR 1910.120 (k)
<input checked="" type="checkbox"/> Engineering controls and work practices, 29 CFR 1910.120 (g)	<input checked="" type="checkbox"/> Emergency response, 29 CFR 1910.120 (l)
<input type="checkbox"/> Heavy machinery	<input checked="" type="checkbox"/> Elements of an emergency response, 29 CFR 1910.120 (l)
<input type="checkbox"/> Forklift	<input checked="" type="checkbox"/> Procedures for handling site emergency incidents, 29 CFR 1910.120 (l)
<input type="checkbox"/> Backhoe	<input type="checkbox"/> Off-site emergency response, 29 CFR 1910.120 (l)
<input checked="" type="checkbox"/> Equipment	<input type="checkbox"/> Handling drums and containers, 29 CFR 1910.120 (j)
<input checked="" type="checkbox"/> Tools	<input type="checkbox"/> Opening drums and containers
<input type="checkbox"/> Ladder, 29 CFR 1910.27 (d)/29 CFR 1926	<input type="checkbox"/> Electrical material handling equipment
<input checked="" type="checkbox"/> Overhead and underground utilities	<input type="checkbox"/> Radioactive waste
<input type="checkbox"/> Scaffolds	<input type="checkbox"/> Shock-sensitive waste
<input type="checkbox"/> Structural integrity	<input type="checkbox"/> Laboratory waste packs
<input type="checkbox"/> Unguarded openings - wall, floor, ceilings	<input type="checkbox"/> Sampling drums and containers
<input type="checkbox"/> Pressurized air cylinders	<input type="checkbox"/> Shipping and transport, 49 CFR 172.101, IATA
<input checked="" type="checkbox"/> Personal protective equipment, 29 CFR 1910.120 (g); 29 CFR 1910.134	<input type="checkbox"/> Tank and vault procedures
<input type="checkbox"/> Respiratory protection, 29 CFR 1910.120 (g); ANSI Z88.2	<input checked="" type="checkbox"/> Illumination, 29 CFR 1910.120 (m)
<input type="checkbox"/>	<input checked="" type="checkbox"/> Sanitation, 29 CFR 1910.120 (n)
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>

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HEALTH AND SAFETY EVALUATION- 1 CHEMICAL HAZARDS-FORM 25

Hazardous Substance/Tasks	Physical Properties	Normal Physical State	State At Site/Proj. Temp.	Characteristics	Exposure Limits	Route(s) of Exposure/Symptoms	Monitoring Instruments/ Ionization Potential + % Response
	<input type="checkbox"/> Explosive <input type="checkbox"/> Flammable <input type="checkbox"/> Corrosive <input type="checkbox"/> Reactive <input type="checkbox"/> Water Reactive <input type="checkbox"/> Oxidizer <input type="checkbox"/> Radioactive <input type="checkbox"/> Other	<input type="checkbox"/> Solid <input type="checkbox"/> Liquid <input type="checkbox"/> Gas	<input type="checkbox"/> Solid <input type="checkbox"/> Liquid <input type="checkbox"/> Gas	pH: FP: LEL: UEL: Auto. Ig.: BP:	<input type="checkbox"/> CA _____ <input type="checkbox"/> PEL _____ <input type="checkbox"/> TLV _____ <input type="checkbox"/> IDLH _____ <input type="checkbox"/> Only toxicological data available <input type="checkbox"/> Other:	<input type="checkbox"/> Inhalation <input type="checkbox"/> Ingestion <input type="checkbox"/> Skin Absorption <input type="checkbox"/> Contact <input type="checkbox"/> Direct Penetration <input type="checkbox"/> Other: _____	<input type="checkbox"/> HNu <input type="checkbox"/> 11.7 eV <input type="checkbox"/> 10.2 eV <input type="checkbox"/> OVM <input type="checkbox"/> 10.0/10.6 eV <input type="checkbox"/> 11.8 eV <input type="checkbox"/> CGI <input type="checkbox"/> OVA <input type="checkbox"/> _____
CAS No:		Incompatible With:		MP:		Symptoms:	IP: % Response:
	Sp. Gr.:						
	Vap. D.:						
	Vap. P.:						
Synonyms:				H ₂ O Sol.:			
				Other:			

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Form 26 – Attachment B – Material Safety Data Sheets (MSDSs)

Insert Material Safety Data Sheets (MSDSs) here.

**Form 27 – Attachment C – Safety Procedures/Field Operating
Procedures (FLD Ops)**

Insert the appropriate Safety Procedures/Field Operating Procedures here.

NIOSH Pocket Guide to Chemical Hazards

Cadmium dust (as Cd)		CAS 7440-43-9 (metal)	
Cd (metal)		RTECS EU9800000 (metal)	
Synonyms & Trade Names Cadmium metal: Cadmium Other synonyms vary depending upon the specific cadmium compound.		DOT ID & Guide 2570 154 (compounds)	
Exposure Limits	NIOSH REL*: Ca See Appendix A [*Note: The REL applies to all Cadmium compounds (as Cd).]		
	OSHA PEL*: [1910.1027] TWA 0.005 mg/m ³ [*Note: The PEL applies to all Cadmium compounds (as Cd).]		
IDLH Ca [9 mg/m ³ (as Cd)] See: IDLH INDEX		Conversion	
Physical Description Metal: Silver-white, blue-tinged lustrous, odorless solid.			
MW: 112.4	BP: 1409°F	MLT: 610°F	Sol: Insoluble
VP: 0 mmHg (approx)	IP: NA		Sp.Gr: 8.65 (metal)
Fl.P: NA	UEL: NA	LEL: NA	
Metal: Noncombustible Solid in bulk form, but will burn in powder form.			
Incompatibilities & Reactivities Strong oxidizers; elemental sulfur, selenium & tellurium			
Measurement Methods NIOSH 7048; OSHA ID121, ID125G, ID189, ID206 See: NMAM or OSHA Methods			
Personal Protection & Sanitation Skin: No recommendation Eyes: No recommendation Wash skin: Daily Remove: No recommendation Change: Daily		First Aid (See procedures) Eye: Irrigate immediately Skin: Soap wash Breathing: Respiratory support Swallow: Medical attention immediately	
Respirator Recommendations NIOSH At concentrations above the NIOSH REL, or where there is no REL, at any detectable concentration: (APF = 10,000) Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode/(APF = 10,000) Any supplied-air respirator that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained positive-pressure breathing apparatus Escape: (APF = 50) Any air-purifying, full-facepiece respirator with a high-efficiency particulate filter/Any appropriate escape-type, self-contained breathing apparatus			
Exposure Routes inhalation, ingestion			
Symptoms Pulmonary edema, dyspnea (breathing difficulty), cough, chest tightness, substernal (occurring beneath the sternum) pain; headache; chills, muscle aches; nausea, vomiting, diarrhea; anosmia (loss of the sense of smell), emphysema, proteinuria, mild anemia; [potential occupational carcinogen]			

Target Organs respiratory system, kidneys, prostate, blood

Cancer Site [prostatic & lung cancer]

See also: INTRODUCTION See ICSC CARD: 0020

NIOSH Pocket Guide to Chemical Hazards

Hydrogen sulfide		CAS 7783-06-4
H₂S		RTECS MX1225000
Synonyms & Trade Names Hydrosulfuric acid, Sewer gas, Sulfuretted hydrogen		DOT ID & Guide 1053 117
Exposure Limits	NIOSH REL: C 10 ppm (15 mg/m ³) [10-minute]	
	OSHA PEL†: C 20 ppm 50 ppm [10-minute maximum peak]	
IDLH 100 ppm See: 7783064		Conversion 1 ppm = 1.40 mg/m ³
Physical Description Colorless gas with a strong odor of rotten eggs. [Note: Sense of smell becomes rapidly fatigued & can NOT be relied upon to warn of the continuous presence of H ₂ S. Shipped as a liquefied compressed gas.]		
MW: 34.1	BP: -77°F	FRZ: -122°F
VP: 17.6 atm	IP: 10.46 eV	RGasD: 1.19
Fl.P: NA (Gas)	UEL: 44.0%	LEL: 4.0%
Flammable Gas		
Incompatibilities & Reactivities Strong oxidizers, strong nitric acid, metals		
Measurement Methods NIOSH 6013; OSHA ID141 See: NMAM or OSHA Methods		
Personal Protection & Sanitation Skin: Frostbite Eyes: Frostbite Wash skin: No recommendation Remove: When wet (flammable) Change: No recommendation Provide: Frostbite		First Aid (See procedures) Eye: Frostbite Skin: Frostbite Breathing: Respiratory support
Respirator Recommendations NIOSH Up to 100 ppm: (APF = 25) Any powered, air-purifying respirator with cartridge(s) providing protection against the compound of concern/(APF = 50) Any air-purifying, full-facepiece respirator (gas mask) with a chin-style, front- or back-mounted canister providing protection against the compound of concern/(APF = 10) Any supplied-air respirator*/(APF = 50) Any self-contained breathing apparatus with a full facepiece Emergency or planned entry into unknown concentrations or IDLH conditions: (APF = 10,000) Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode/(APF = 10,000) Any supplied-air respirator that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained positive-pressure breathing apparatus Escape: (APF = 50) Any air-purifying, full-facepiece respirator (gas mask) with a chin-style, front- or back-mounted canister providing protection against the compound of concern/Any appropriate escape-type, self-contained breathing apparatus		
Exposure Routes inhalation, skin and/or eye contact		
Symptoms Irritation eyes, respiratory system; apnea, coma, convulsions; conjunctivitis, eye pain, lacrimation		

(discharge of tears), photophobia (abnormal visual intolerance to light), corneal vesiculation; dizziness, headache, lassitude (weakness, exhaustion), irritability, insomnia; gastrointestinal disturbance; liquid: frostbite

Target Organs Eyes, respiratory system, central nervous system

See also: [INTRODUCTION](#) See ICSC CARD: [0165](#) See MEDICAL TESTS: [0119](#)

NIOSH Pocket Guide to Chemical Hazards

Lead			CAS 7439-92-1
Pb			RTECS OF7525000
Synonyms & Trade Names Lead metal, Plumbum			DOT ID & Guide
Exposure Limits	NIOSH REL*: TWA 0.050 mg/m ³ See Appendix C [*Note: The REL also applies to other lead compounds (as Pb) -- see Appendix C.]		
	OSHA PEL*: [1910.1025] TWA 0.050 mg/m ³ See Appendix C [*Note: The PEL also applies to other lead compounds (as Pb) -- see Appendix C.]		
IDLH 100 mg/m ³ (as Pb) See: 7439921		Conversion	
Physical Description A heavy, ductile, soft, gray solid.			
MW: 207.2	BP: 3164°F	MLT: 621°F	Sol: Insoluble
VP: 0 mmHg (approx)	IP: NA		Sp.Gr: 11.34
Fl.P: NA	UEL: NA	LEL: NA	
Noncombustible Solid in bulk form.			
Incompatibilities & Reactivities Strong oxidizers, hydrogen peroxide, acids			
Measurement Methods NIOSH 7082, 7105, 7300, 7700, 7701, 7702; OSHA ID121, ID125G, ID206 See: NMAM or OSHA Methods			
Personal Protection & Sanitation Skin: Prevent skin contact Eyes: Prevent eye contact Wash skin: Daily Remove: When wet or contaminated Change: Daily		First Aid (See procedures) Eye: Irrigate immediately Skin: Soap flush promptly Breathing: Respiratory support Swallow: Medical attention immediately	
Respirator Recommendations NIOSH/OSHA Up to 0.5 mg/m ³ : (APF = 10) Any air-purifying respirator with a high-efficiency particulate filter/(APF = 10) Any supplied-air respirator Up to 1.25 mg/m ³ : (APF = 25) Any supplied-air respirator operated in a continuous-flow mode/(APF = 25) Any powered, air-purifying respirator with a high-efficiency particulate filter Up to 2.5 mg/m ³ : (APF = 50) Any air-purifying, full-facepiece respirator with a high-efficiency particulate filter/(APF = 50) Any supplied-air respirator that has a tight-fitting facepiece and is operated in a continuous-flow mode/(APF = 50) Any powered, air-purifying respirator with a tight-fitting facepiece and a high-efficiency particulate filter/(APF = 50) Any self-contained breathing apparatus with a full facepiece/(APF = 50) Any supplied-air respirator with a full facepiece Up to 50 mg/m ³ : (APF = 1000) Any supplied-air respirator operated in a pressure-demand or other positive-pressure mode Up to 100 mg/m ³ : (APF = 2000) Any supplied-air respirator that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode			

Emergency or planned entry into unknown concentrations or IDLH conditions: (APF = 10,000) Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode/(APF = 10,000) Any supplied-air respirator that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained positive-pressure breathing apparatus

Escape: (APF = 50) Any air-purifying, full-facepiece respirator with a high-efficiency particulate filter/Any appropriate escape-type, self-contained breathing apparatus

Exposure Routes inhalation, ingestion, skin and/or eye contact

Symptoms Lassitude (weakness, exhaustion), insomnia; facial pallor; anorexia, weight loss, malnutrition; constipation, abdominal pain, colic; anemia; gingival lead line; tremor; paralysis wrist, ankles; encephalopathy; kidney disease; irritation eyes; hypotension

Target Organs Eyes, gastrointestinal tract, central nervous system, kidneys, blood, gingival tissue

See also: INTRODUCTION See ICSC CARD: 0052 See MEDICAL TESTS: 0127

NIOSH Pocket Guide to Chemical Hazards

Trichloroethylene		CAS 79-01-6
ClCH=CCl₂		RTECS KX4550000
Synonyms & Trade Names Ethylene trichloride, TCE, Trichloroethene, Trilene		DOT ID & Guide 1710 160
Exposure Limits	NIOSH REL: Ca See Appendix A See Appendix C	
	OSHA PEL†: TWA 100 ppm C 200 ppm 300 ppm (5-minute maximum peak in any 2 hours)	
IDLH Ca [1000 ppm] See: 79016		Conversion 1 ppm = 5.37 mg/m ³
Physical Description Colorless liquid (unless dyed blue) with a chloroform-like odor.		
MW: 131.4	BP: 189°F	FRZ: -99°F
VP: 58 mmHg	IP: 9.45 eV	Sp.Gr: 1.46
FLP: ?	UEL(77°F): 10.5%	LEL(77°F): 8%
Combustible Liquid, but burns with difficulty.		
Incompatibilities & Reactivities Strong caustics & alkalis; chemically-active metals (such as barium, lithium, sodium, magnesium, titanium & beryllium)		
Measurement Methods NIOSH 1022, 3800; OSHA 1001 See: NMAM or OSHA Methods		
Personal Protection & Sanitation Skin: Prevent skin contact Eyes: Prevent eye contact Wash skin: When contaminated Remove: When wet or contaminated Change: No recommendation Provide: Eyewash, Quick drench		First Aid (See procedures) Eye: Irrigate immediately Skin: Soap wash promptly Breathing: Respiratory support Swallow: Medical attention immediately
Respirator Recommendations NIOSH At concentrations above the NIOSH REL, or where there is no REL, at any detectable concentration: (APF = 10,000) Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode/(APF = 10,000) Any supplied-air respirator that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained positive-pressure breathing apparatus Escape: (APF = 50) Any air-purifying, full-facepiece respirator (gas mask) with a chin-style, front- or back-mounted organic vapor canister/Any appropriate escape-type, self-contained breathing apparatus		
Exposure Routes inhalation, skin absorption, ingestion, skin and/or eye contact		
Symptoms Irritation eyes, skin; headache, visual disturbance, lassitude (weakness, exhaustion), dizziness, tremor, drowsiness, nausea, vomiting; dermatitis; cardiac arrhythmias, paresthesia; liver injury; [potential occupational carcinogen]		
Target Organs Eyes, skin, respiratory system, heart, liver, kidneys, central nervous system		

Cancer Site [in animals: liver & kidney cancer]

See also: [INTRODUCTION](#) See ICSC CARD: [0081](#) See MEDICAL TESTS: [0236](#)

NIOSH Pocket Guide to Chemical Hazards

Zinc oxide			CAS 1314-13-2
ZnO			RTECS ZH4810000
Synonyms & Trade Names Zinc peroxide			DOT ID & Guide 1516 143
Exposure Limits	NIOSH REL: Dust: TWA 5 mg/m ³ C 15 mg/m ³ Fume: TWA 5 mg/m ³ ST 10 mg/m ³		
	OSHA PEL†: TWA 5 mg/m ³ (fume) TWA 15 mg/m ³ (total dust) TWA 5 mg/m ³ (resp dust)		
IDLH 500 mg/m ³ See: 1314132		Conversion	
Physical Description White, odorless solid.			
MW: 81.4	BP: ?	MLT: 3587°F	Sol(64°F): 0.0004%
VP: 0 mmHg (approx)	IP: NA		Sp.Gr: 5.61
FLP: NA	UEL: NA	LEL: NA	
Noncombustible Solid			
Incompatibilities & Reactivities Chlorinated rubber (at 419°F), water [Note: Slowly decomposed by water.]			
Measurement Methods NIOSH 7502; OSHA ID121, ID143 See: <u>NMAM</u> or <u>OSHA Methods</u>			
Personal Protection & Sanitation Skin: No recommendation Eyes: No recommendation Wash skin: No recommendation Remove: No recommendation Change: No recommendation		First Aid (See procedures) Breathing: Respiratory support	
Respirator Recommendations NIOSH/OSHA Up to 50 mg/m ³ : (APF = 10) Any dust, mist, and fume respirator/(APF = 10) Any supplied-air respirator Up to 125 mg/m ³ : (APF = 25) Any supplied-air respirator operated in a continuous-flow mode/(APF = 25) Any powered, air-purifying respirator with a dust, mist, and fume filter Up to 250 mg/m ³ : (APF = 50) Any air-purifying, full-facepiece respirator with a high-efficiency particulate filter/(APF = 50) Any supplied-air respirator that has a tight-fitting facepiece and is operated in a continuous-flow mode/(APF = 50) Any powered, air-purifying respirator with a tight-fitting facepiece and a high-efficiency particulate filter/(APF = 50) Any self-contained breathing apparatus with a full facepiece/(APF = 50) Any supplied-air respirator with a full facepiece Up to 500 mg/m ³ : (APF = 1000) Any supplied-air respirator operated in a pressure-demand or other positive-pressure mode Emergency or planned entry into unknown concentrations or IDLH conditions: (APF = 10,000) Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode/(APF = 10,000) Any supplied-air respirator that has a full facepiece and is operated in a pressure-			

demand or other positive-pressure mode in combination with an auxiliary self-contained positive-pressure breathing apparatus

Escape: (APF = 50) Any air-purifying, full-facepiece respirator with a high-efficiency particulate filter/Any appropriate escape-type, self-contained breathing apparatus

Exposure Routes inhalation

Symptoms Metal fume fever: chills, muscle ache, nausea, fever, dry throat, cough; lassitude (weakness, exhaustion); metallic taste; headache; blurred vision; low back pain; vomiting; malaise (vague feeling of discomfort); chest tightness; dyspnea (breathing difficulty), rales, decreased pulmonary function

Target Organs respiratory system

See also: INTRODUCTION See ICSC CARD: 0208 See MEDICAL TESTS: 0246

NIOSH Pocket Guide to Chemical Hazards

Vinyl chloride		CAS 75-01-4
$\text{CH}_2=\text{CHCl}$		RTECS KU9625000
Synonyms & Trade Names Chloroethene, Chloroethylene, Ethylene monochloride, Monochloroethene, Monochloroethylene, VC, Vinyl chloride monomer (VCM)		DOT ID & Guide 1086 116P
Exposure Limits	NIOSH REL: Ca See Appendix A	
	OSHA PEL: [1910.1017] TWA 1 ppm C 5 ppm [15-minute]	
IDLH Ca [N.D.] See: IDLH INDEX		Conversion 1 ppm = 2.56 mg/m ³
Physical Description Colorless gas or liquid (below 7°F) with a pleasant odor at high concentrations. [Note: Shipped as a liquefied compressed gas.]		
MW: 62.5	BP: 7°F	FRZ: -256°F
VP: 3.3 atm	IP: 9.99 eV	RGasD: 2.21
Fl.P: NA (Gas)	UEL: 33.0%	LEL: 3.6%
Flammable Gas		
Incompatibilities & Reactivities Copper, oxidizers, aluminum, peroxides, iron, steel [Note: Polymerizes in air, sunlight, or heat unless stabilized by inhibitors such as phenol. Attacks iron & steel in presence of moisture.]		
Measurement Methods NIOSH 1007; OSHA 4, 75 See: NMAM or OSHA Methods		
Personal Protection & Sanitation Skin: Frostbite Eyes: Frostbite Wash skin: No recommendation Remove: When wet (flammable) Change: No recommendation Provide: Frostbite		First Aid (See procedures) Eye: Frostbite Skin: Frostbite Breathing: Respiratory support
Respirator Recommendations NIOSH At concentrations above the NIOSH REL, or where there is no REL, at any detectable concentration: (APF = 10,000) Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode/(APF = 10,000) Any supplied-air respirator that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained positive-pressure breathing apparatus Escape: (APF = 50) Any air-purifying, full-facepiece respirator (gas mask) with a chin-style, front- or back-mounted canister providing protection against the compound of concern/Any appropriate escape-type, self-contained breathing apparatus		
Exposure Routes inhalation, skin, and/or eye contact (liquid)		
Symptoms Lassitude (weakness, exhaustion); abdominal pain, gastrointestinal bleeding; enlarged liver; pallor or cyanosis of extremities; liquid: frostbite; [potential occupational carcinogen]		

Target Organs Liver, central nervous system, blood, respiratory system, lymphatic system

Cancer Site [liver cancer]

See also: [INTRODUCTION](#) See ICSC CARD: 0082 See MEDICAL TESTS: 0241

NIOSH Pocket Guide to Chemical Hazards

1,2-Dichloroethylene		CAS 540-59-0
ClCH=CHCl		RTECS KV9360000
Synonyms & Trade Names Acetylene dichloride, cis-Acetylene dichloride, trans-Acetylene dichloride, sym-Dichloroethylene		DOT ID & Guide 1150 132P
Exposure Limits	NIOSH REL: TWA 200 ppm (790 mg/m ³)	
	OSHA PEL: TWA 200 ppm (790 mg/m ³)	
IDLH 1000 ppm See: 540590		Conversion 1 ppm = 3.97 mg/m ³
Physical Description Colorless liquid (usually a mixture of the cis & trans isomers) with a slightly acrid, chloroform-like odor.		
MW: 97.0	BP: 118-140°F	FRZ: -57 to -115°F
VP: 180-265 mmHg	IP: 9.65 eV	Sol: 0.4%
FLP: 36-39°F	UEL: 12.8%	LEL: 5.6%
Class IB Flammable Liquid: FLP below 73°F and BP at or above 100°F.		
Incompatibilities & Reactivities Strong oxidizers, strong alkalis, potassium hydroxide, copper [Note: Usually contains inhibitors to prevent polymerization.]		
Measurement Methods NIOSH 1003; OSHA 7 See: NMAM or OSHA Methods		
Personal Protection & Sanitation Skin: Prevent skin contact Eyes: Prevent eye contact Wash skin: When contaminated Remove: When wet (flammable) Change: No recommendation		First Aid (See procedures) Eye: Irrigate immediately Skin: Soap wash promptly Breathing: Respiratory support Swallow: Medical attention immediately
Respirator Recommendations NIOSH/OSHA Up to 2000 ppm: (APF = 25) Any supplied-air respirator operated in a continuous-flow mode [£] /(APF = 25) Any powered, air-purifying respirator with organic vapor cartridge(s) [£] /(APF = 50) Any chemical cartridge respirator with a full facepiece and organic vapor cartridge(s)/(APF = 50) Any air-purifying, full-facepiece respirator (gas mask) with a chin-style, front- or back-mounted organic vapor canister/(APF = 50) Any self-contained breathing apparatus with a full facepiece/(APF = 50) Any supplied-air respirator with a full facepiece Emergency or planned entry into unknown concentrations or IDLH conditions: (APF = 10,000) Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode/(APF = 10,000) Any supplied-air respirator that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained positive-pressure breathing apparatus Escape: (APF = 50) Any air-purifying, full-facepiece respirator (gas mask) with a chin-style, front- or back-mounted organic vapor canister/Any appropriate escape-type, self-contained breathing apparatus		
Exposure Routes inhalation, ingestion, skin and/or eye contact		

Symptoms Irritation eyes, respiratory system; central nervous system depression

Target Organs Eyes, respiratory system, central nervous system

See also: [INTRODUCTION](#) See ICSC CARD: 0436

SITE-SPECIFIC HAZARD COMMUNICATION PROGRAM-FORM 28

Location-Specific Hazard Communication Program/Checklist

To ensure an understanding of and compliance with the Hazard Communication Standard, WESTON will use this checklist/document (or similar document) in conjunction with the WESTON Written Hazard Communication Program as a means of meeting site- or location-specific requirements.

While responsibility for activities within this document reference the WESTON Safety Officer (SO), it is the responsibility of all personnel to effect compliance. Responsibilities under various conditions can be found within the WESTON Written Hazard Communication Program.

To ensure that information about the dangers of all hazardous chemicals used by WESTON are known by all affected employees, the following Hazard Communication Program has been established. All affected personnel will participate in the Hazard Communication Program. This written program, as well as WESTON's Corporate Hazard Communication Program, will be available for review by any employee, employee representative, representative of OSHA, NIOSH, or any affected employer/employee on a multi-employer site.

- ☒ Site or other location name/address: H.O.D Landfill Antioch , Lake County, Illinois
- ☒ Site/Project/Location Manager: Om Patel
- ☐ Site/Location Safety Officer: _____
- ☒ List of chemicals compiled, format: ☒ HASP ☐ Other: _____
- ☐ Location of MSDS files: _____
- ☐ Training conducted by: Name: _____ Date: _____
- ☐ Indicate format of training documentation: ☐ Field Log: ☐ Other: _____
- ☐ Client briefing conducted regarding hazard communication: _____
- ☐ If multi-employer site (client, subcontractor, agency, etc.), indicate name of affected companies: _____
- ☐ Other employer(s) notified of chemicals, labeling, and MSDS information: _____
- ☒ Has WESTON been notified of other employer's or client's hazard communication program(s), as necessary? ☐ Yes ☐ No

List of Hazardous Chemicals

A list of known hazardous chemicals used by WESTON personnel must be prepared and attached to this document or placed in a centrally identified location with the MSDSs. Further information on each chemical may be obtained by reviewing the appropriate MSDS. The list will be arranged to enable cross-reference with the MSDS file and the label on the container. The SO or Location Manager is responsible for ensuring the chemical listing remains up-to-date.

Container Labeling

The WESTON SO will verify that all containers received from the chemical manufacturer, importer, or distributor for use on-site are clearly labeled.

The SO is responsible for ensuring that labels are placed where required and for comparing MSDSs and other information with label information to ensure correctness.

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Material Safety Data Sheets (MSDSs)

FORM 28

The SO is responsible for establishing and monitoring WESTON's MSDS program for the location. The SO will ensure that procedures are developed to obtain the necessary MSDSs and will review incoming MSDSs for new or significant health and safety information. He/she will see that any new information is passed on to the affected employees. If an MSDS is not received at the time of initial shipment, the SO will call the manufacturer and have an MSDS delivered for that product in accordance with the requirements of WESTON's Written Hazard Communication Program.

A log for, and copies of, MSDSs for all hazardous chemicals in use will be kept in the MSDS folder at a location known to all site workers. MSDSs will be readily available to all employees during each work shift. If an MSDS is not available, immediately contact the WESTON SO or the designated alternate. When a revised MSDS is received, the SO will immediately replace the old MSDS.

Employee Training and Information

The SO is responsible for the WESTON site-specific personnel training program. The SO will ensure that all program elements specified below are supplied to all affected employees.

At the time of initial assignment for employees to the work site, or whenever a new hazard is introduced into the work area, employees will attend a health and safety meeting or briefing that includes the information indicated below.

- Hazardous chemicals present at the work site.
- Physical and health risks of the hazardous chemicals.
- The signs and symptoms of overexposure.
- Procedures to follow if employees are overexposed to hazardous chemicals.
- Location of the MSDS file and Written Hazard Communication Program.
- How to determine the presence or release of hazardous chemicals in the employee's work area.
- How to read labels and review MSDSs to obtain hazard information.
- Steps WESTON has taken to reduce or prevent exposure to hazardous chemicals.
- How to reduce or prevent exposure to hazardous chemicals through the use of controls procedures, work practices, and personal protective equipment.
- Hazardous, nonroutine tasks to be performed (if any).
- Chemicals within unlabeled piping (if any).

Hazardous Nonroutine Tasks

When employees are required to perform hazardous nonroutine tasks, the affected employee(s) will be given information by the SO about the hazardous chemicals he or she may use during such activity. This information will include specific chemical hazards, protective and safety measures the employee can use, and steps WESTON is using to reduce the hazards. These steps include, but are not limited to, ventilation, respirators, presence of another employee, and emergency procedures.

Chemicals in Unlabeled Pipes

Work activities may be performed by employees in areas where chemicals are transferred through unlabeled pipes. Prior to starting work in these areas, the employee will contact the SO, at which time information as to the chemical(s) in the pipes, potential hazards of the chemicals or the process involved, and the safety precautions that should be taken will be determined and presented.

Multi-Employer Work Sites

It is the responsibility of the SO to provide other employers with information about hazardous chemicals imported by WESTON to which their employees may be exposed, along with suggested safety precautions. It is also the responsibility of the SO and the Site Manager to obtain information about hazardous chemicals used by other employers to which WESTON

employees may be exposed. WESTON's chemical listing will be made available to other employers, as requested. MSDSs will be available for viewing, as necessary. The location, format, and/or procedures for accessing MSDS information must be relayed to affected employees.

Revised 02/1998

SITE AIR MONITORING PROGRAM-FORM 29

Field Data Sheets

Location:

% LEL	% O ₂	PID (units)	FID (units)	Aerosol Monitor (mg/m ³)	GM: Shield Probe/ Thin Window		NaI (uR/hr)	ZnS (cpm)
					mR/hr	cpm		
Monitox (ppm)				Detector Tube(s)				
Sound Levels (dBA)		Illumination	pH	Other	Other	Other	Other	Other

Location:

% LEL	% O ₂	PID (units)	FID (units)	Aerosol Monitor (mg/m ³)	GM: Shield Probe/ Thin Window		NaI (uR/hr)	ZnS (cpm)
					mR/hr	cpm		
Monitox (ppm)				Detector Tube(s)				
Sound Levels (dBA)		Illumination	pH	Other	Other	Other	Other	Other

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Appendix F

HEALTH AND SAFETY PLAN FOR THE REMEDIAL ACTION

H.O.D. LANDFILL
ANTIOCH, ILLINOIS

PREPARED BY
RMT, INC.

June 2000

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Preface

This Health and Safety Plan (HSP) is part of the Remedial Design/Remedial Action (RD/RA) documentation for the H.O.D. Landfill Site in Antioch, Illinois, developed in response to the Administrative Order for Remedial Design and Remedial Action issued by the United States Environmental Protection Agency (USEPA). This HSP addresses the RA (construction and monitoring) as required in Section III of the Statement of Work (SOW) attached to the Administrative Order. It has been prepared for use by RMT, Inc., employees to meet the requirements of Occupational Health and Safety Administration Standards under 29 CFR 1910 and 1926, and related guidance. Individual contractors at the site will be responsible for preparing their own Health and Safety Plan to meet local, state, and federal requirements.

Section 1

Introduction

1.1 Purpose

This site-specific RMT Health and Safety Plan (HSP) has been developed to provide guidelines and procedures intended to protect the health and safety of RMT personnel performing site work associated with the RA. These site activities are generally defined by the RD/RA Workplan and are described in detail in the Remedial Design Report. The HSP will be reviewed with all RMT field personnel before RA site work begins. Each subcontractor will be required to develop and implement their own health and safety plan applicable to their work on-site in accordance with local, state, and federal requirements; Waste Management of Illinois, Inc. (WMII), contractor requirements; and this HSP.

Specific questions regarding the HSP should be addressed to the RMT Health and Safety Coordinator (HSC). A copy of the HSP will be available for review by site personnel and authorized visitors upon the request of the site RMT Health and Safety Representative (HSR). Employees of each consulting and/or contracted company will be working in accordance with their own independent HSPs, providing that the minimum requirements of this HSP are fulfilled.

The HSP will be reviewed periodically by the site Health and Safety Representative (HSR) and updated as necessary. The plan will also be updated to reflect new or additional site information when this information becomes available.

1.2 Scope

The HSP is aimed specifically at protecting RMT site workers from reasonably foreseeable health and safety hazards arising from the conditions found at the H.O.D. Landfill site as a result of undertaking the RA. The procedures presented have been identified based on the analytical results from soil, sediment, surface water, and groundwater samples collected during previous site work. This HSP meets the requirements of the Statement of Work.

The HSP has been developed in conformance with the following requirements and guidance:

- Occupational Safety and Health Administration (OSHA) Standards, 29 CFR 1910 and 1926, including 29 CFR 1910.120
- NIOSH/OSHA/USCG/EPA, *Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities*, October 1985

- USEPA, Standard Operating Safety Guides, June 1992

The HSP has been developed from technical information available as of March 2000 and is subject to revision as new data and information about the site and site activities become available. The plan shall cover employees performing site fieldwork associated with the RA.

The work tasks to be completed for the RA phase are as follows:

- Installation of site erosion controls
- Grading of site
- Relocation of waste
- Installation and/or rehabilitation of extraction wells
- Placement of landfill gas (LFG) and leachate piping
- Construction of a blower/flare station
- Construction of a leachate tank and loadout facility
- Construction of access roads
- Placement of perimeter fence and access gates
- Placement of topsoil, seed, and mulch
- Monitoring and sampling of groundwater, leachate, landfill gas, and surface water
- Installation of landfill gas probes

1.3 Applicability

The HSP applies to RMT personnel who participate in RA field activities. It contains the minimum requirements necessary to protect on-site personnel from physical, chemical, and other hazards particular to this site that have been identified as of the date of this HSP. More stringent practices than those outlined in this plan may be used, but this plan specifies the minimum practices to which personnel must adhere.

1.4 Responsibilities

The specific duties of those personnel who are responsible for the HSP are as follows:

- *Project Manager (PM)* - Provides an overview of site facilities, equipment, and personnel so that site activities can be conducted in a safe and efficient manner.
- *Health and Safety Coordinator (HSC)* - Develops HSP in conjunction with Project Manager and site HSR; reviews plan periodically and revises plan when new information becomes available; offers technical support to site HSR on health and safety issues; and audits work activities for adherence to HSP.

- *Site Health and Safety Representative (HSR)* - Implements the HSP; advises field team on aspects of on-site health and safety; selects and reviews protective clothing and equipment with input from HSC; monitors the field team members for signs of heat or cold stress; monitors on-site hazards and conditions; knows emergency procedures, evacuation routes, and emergency telephone numbers; and notifies public emergency officials when necessary.
- *Other Site Personnel* - Responsible for adhering to the provisions of the site HSP and all OSHA requirements specified in the plan.

1.5 Plan Components

The HSP contains information addressing the following areas:

- Health and safety training requirements
- Medical surveillance requirements
- Chemical and physical hazard evaluations and control measures
- Air monitoring parameters and equipment
- Delineation of site work zones and contaminant control
- Decontamination procedures – personnel and equipment
- Personal protective equipment and levels of protection
- Work limitations
- Contingency and emergency planning
- Record keeping

Section 2

Site Background

2.1 Site Description

The H.O.D. Landfill Superfund Site (the site) is located within the eastern boundary of the Village of Antioch in Lake County, northeastern Illinois. The site consists of approximately 51 acres of landfilled area out of the total 121.5 acres of property that make up the facility. Although the landfilled area is continuous, it consists of two separate landfill areas, identified as the "old landfill" and the "new landfill." The "old landfill" consists of 24.2 acres situated on the western third of the property. The "new landfill" consists of 26.8 acres located immediately east of, and contiguous to, the "old landfill" (see Appendix A). The two landfill areas have been legally delineated under an Illinois Environmental Protection Agency (IEPA) permit.

The site is bordered on the south and west by Sequoit Creek. Silver Lake is located approximately 200 feet southeast of the site. A large, seasonal wetland area extends south of the site from Sequoit Creek.

Surface drainage around the site is generally toward the Fox River, located approximately 5 miles west of the site. Locally, surface water flows from the site toward Sequoit Creek. Sequoit Creek flows west from Silver Lake along the southern boundary of the site, then flows north along the western boundary of the site. Approximately 250 feet north of the northwestern corner of the site, the creek channel turns west and the creek flows approximately 2 miles before discharging into Lake Marie. Lake Marie eventually discharges into the Fox River.

The landfill cover is continuous across the filled areas of the site. The landfill cover ranges in thickness from a total of 49 inches to 87 inches based on borings and test pits performed during the Remedial Investigation (Montgomery Watson, 1997). Refuse was generally encountered beneath the existing landfill cover. The landfill cover supports a healthy vegetative layer. Since the closure and capping of the site in 1989, precipitation has resulted in erosional rills and gullies in some areas of the landfill cover. Several areas of differential settlement and stressed vegetation have developed since the cap construction. Minor leachate seeps, animal burrows, and landfill gas (LFG) emission areas have also been noticed since the cap construction.

Based on aerial photographs and a 1960 United States Geological Survey (USGS) topographic map of the site area, the eastern portion of the site was a wetland area prior to landfill development. Seasonal wetlands exist within only the low elevation portion of the site, south of the "new landfill" area. The wetlands are limited to the areas outside the delineated landfill

boundaries. Sequoit Creek flows from Silver Lake by way of two stream channels, which eventually join and proceed through the seasonal wetlands.

2.2 Site Geology and Hydrogeology

The regional and site geology and hydrogeology were described in detail in the Remedial Investigation/Feasibility Study (Montgomery Watson, 1997). In general, the site geology consists of the following:

2.2.1 Surficial Materials

The surficial materials include clayey to gravelly topsoil, peat, and fill material (disturbed soil), and range in thickness from approximately 2 to 9 feet.

Isolated lenses of silty sand and organic-rich clay observed overlying the surficial sand unit are representative of fine-grained, post-fluvial environments, such as wetland or overbank deposits. A thin lense of sand and gravel exists near the surface north of the landfill. The lense does not appear to be areally extensive and does not extend into the landfill area.

2.2.2 Surficial Sand

The surficial sand is limited in both vertical and horizontal extent, exhibits an elongated geometry, and trends east-northeast/west-southwest along the southern boundary of the site.

The top of the surficial sand begins at depths ranging from 7.5 to 20 feet below ground surface. The unit ranges in thickness from 0 to approximately 54 feet. The surficial sand generally consists of light-brownish-gray to dark-gray, fine- to medium-grained sand and gravel. It is poorly to well sorted and contains angular to rounded gravel of mixed lithology.

2.2.3 Clay Diamicton

The clay diamicton is laterally extensive and is present beneath most of Lake County. The clay diamicton represents deposits of the Wadsworth Till Member. The clay diamicton is present beneath the entire site based on borings drilled during previous investigations.

The top of the clay diamicton is present immediately beneath the surface soil along the northern boundary of the site and may be as deep as 60 feet below ground surface, where it underlies the surficial sand south of the site. The thickness of the clay

diamicton ranges from greater than 100 feet (north of the site) to 10 feet south of the "old" landfill. The clay diamicton is typically massive; light gray to dark gray; and contains thin, isolated, discontinuous silt seams and sand seams. Lenses of clay and gravelly clay exist within the diamicton.

2.2.4 Deep Sand and Gravel

The deep sand and gravel is laterally extensive and is present beneath the entire site. The full thickness of deep sand and gravel is not known, but geologic logs in the vicinity of Antioch indicate a thickness of about 55 to 60 feet (Kay and Earle, 1990). The upper portion of this unit consists primarily of medium- to coarse-grained sand with some fine-grained sand and gravel. The unit is moderately well sorted and generally coarsens with depth. Lower portions of this unit are poorly sorted and contain greater percentages of gravel. The deep sand and gravel represents outwash deposits associated with the Haeger Till Member (Willman, et al., 1975).

As discussed in the RI/FS (Montgomery Watson, 1997), three unconsolidated hydrostratigraphic units underlie the site. Water-bearing glacial or recent deposits consist of the surficial sand, an underlying clay diamicton aquitard, and a deep sand and gravel aquifer.

2.2.5 Surficial Sand

The surficial sand is present along the southern site boundary and exhibits an elongated east-northeast/west-southwest trending geometry.

Water table conditions exist in the surficial sand. Groundwater in the sand generally flows from the perimeter of the surficial sand deposit toward Sequoit Creek. The direction of groundwater flow is influenced by Sequoit Creek, which traverses the southern and western boundary of the site. PELA installed shallow piezometers along the creek to evaluate surface water/groundwater interaction. Their evaluation indicated that shallow groundwater discharges to Sequoit Creek.

2.2.6 Clay Diamicton

The surficial sand is separated from the deep sand and gravel aquifer by the clay diamicton based on borings conducted in the vicinity of the site. The thickness of the clay diamicton varies beneath the site. Based on an isopach map of clay, the thickest portion of the clay may be in the northeastern part of the landfill. The lithologic description of the clay indicates that the clay is massive, plastic, and characterized by low hydraulic conductivity.

The clay diamicton impedes the movement of groundwater from the surficial sand to the deep sand and gravel aquifer, based on hydraulic head elevations observed in wells screened in each unit. Hydraulic head data collected by PELA on April 23, 1990, indicate that heads in the surficial sand range from approximately 761.6 to 764.5 feet M.S.L., while heads in the deep sand and gravel aquifer range from 727.3 feet to 730.8 feet M.S.L. This head differential of approximately 30 feet substantiates the poor hydraulic communication between the surficial sand and the deep sand and gravel aquifer, which results from the low hydraulic conductivity of the clay diamicton.

2.2.7 Deep Sand and Gravel Aquifer

The deep sand and gravel aquifer (DSGA) occurs beneath the entire site based on site borings. This unit has not been entirely penetrated at the site; therefore, its total thickness is unknown.

The deep sand and gravel aquifer is a confined or semiconfined aquifer. As indicated previously, groundwater elevations in the DSGA range from approximately 727 to 731 feet mean sea level (M.S.L.).

The preliminary results of the groundwater predesign investigation confirm the above discussion. The complete results and conclusions of the groundwater predesign investigation, including (1) the interpretation of the groundwater flow regime, and (2) an assessment of the effectiveness of natural attenuation to reduce the contaminant impacts to groundwater in the DSGA, are included in a report titled "Predesign Investigations, Groundwater" (RMT, in preparation).

Section 3

Health and Safety Training and Medical Surveillance

In order to meet OSHA requirements, all field personnel will participate in health and safety training and a medical surveillance program.

3.1 Health and Safety Training

Prior to beginning field activities, all RMT personnel conducting or observing on-site activities will be certified in the following health and safety training sessions:

- *Site-specific Health and Safety Plan Review* - During this session, this plan will be reviewed, and any special procedures will be outlined.
- *Health and Safety for Hazardous Waste Site Activities* - This one-time 40-hour training session includes the following elements: regulations, industrial hygiene, toxicology, respiratory protection, physical hazards, noise, temperature extremes, personal protective equipment, medical surveillance, air monitoring equipment, site control and decontamination, standard operating procedures, and confined space entry.
- *8-hour Health and Safety Refresher Training* - This training is required annually after the initial 40-hour training. It serves to review the key aspects of the 40-hour training.
- Site personnel who have had 40-hour training will have had 3 day's actual field experience under the supervision of a trained, experienced supervisor.

Training will also be provided to additional field personnel so that backup personnel can be assigned to perform RD/RA activities at the site as the need arises.

Documentation of attendance in training sessions will be maintained by the RMT Human Resources Department and the Health and Safety Coordinator. Site supervisory/management personnel have had supervisor training under 29 CFR 1910.120(e)(4).

The training requirements in OSHA Standard 29 CFR 1910.120 are to be followed, at a minimum, by all personnel that enter the site.

3.2 Medical Surveillance

RMT field personnel assigned to the site will be placed in a medical surveillance program prior to performing their first field assignment. Medical surveillance requirements contained in OSHA Standards 29 CFR 1910.134 and 29 CFR 1910.120 will be followed, at a minimum, for

RMT personnel who actively perform field sampling activities at the site. This surveillance will include an initial and annual medical examination.

The basic protocol for the medical examination includes the following:

- Health history
- Vital signs and physical examination screen
- Pulmonary function test
- Urinalysis
- Heavy metal screen
- Blood chemistry screen
- Vision test
- Hearing test

The initial examination includes an EKG and chest X-ray, in addition to the annual tests listed above. Field personnel assigned to conduct these investigations will have passed the required medical examination as determined by the occupational health physician before entering the project site.

The medical records of personnel are kept on file at the examining physician's clinic. A certificate of medical fitness or specified work restrictions is maintained in the employee's personnel file.

Section 4

Hazard Evaluation

This section describes the possible hazards associated with the H.O.D. Landfill based upon information that is available. The hazard evaluation has been prepared to meet the requirements of OSHA Standard 1910.120 and, as such, includes information regarding chemical hazards, physical hazards, and any other relevant site hazards.

Information regarding potential health effects associated with the site-related constituents is based upon maximum estimates of constituent concentrations and exposure parameters designed to err on the side of overestimating the potential occupation-related risks. Possible hazards include exposure to explosive levels of methane gas, oxygen-deficient atmospheres, and exposure to contaminated groundwater and/or leachate. Listed in Table 4-1 are general site job safety hazards, hazard control measures, and specific site tasks where hazards may be encountered.

4.1 Chemical Hazard Characterization

The following chemical information is presented in order to identify the types of materials that may be encountered at the facility.

These chemicals may exist in liquid, solid, gas, and/or refuse. They may be flammable, volatile, and/or toxic. Exposure limits for the chemicals of potential concern are presented in Table 4-2.

4.1.1 Combustible Gas (Explosive Environment)

The methane gas produced by the microbial activity in the landfill and other combustible gases that may be present in the landfill may act as hazardous compounds in two specific ways. First, methane is a flammable gas and may combust when ambient concentrations are between 5 percent and 15 percent by volume in air, (the Lower Explosive Limit (LEL) and Upper Explosive Limit (UEL) of methane, respectively). Explosions can occur when combustible gases are ignited in confined areas. It will be necessary to have continuous monitoring for combustible gas in the appropriate work areas and to provide engineering controls in areas that have concentrations greater than 25 percent of the LEL. Second, methane is considered a simple asphyxiant: it displaces the oxygen normally breathed in the air. Methane has no odor and is not irritating to eyes, nose, or throat. However, in association with landfill gas, it is easily detected by its odor.

Table 4-1
General Job Safety Hazards and On-site Control Measures

POTENTIAL HAZARDS	HAZARD CONTROL MEASURES	PERSONAL PROTECTIVE CLOTHING AND EQUIPMENT	TASK BREAKDOWN
Heavy equipment	<ul style="list-style-type: none"> ■ Isolate equipment swing areas. ■ Make eye contact with operators before approaching equipment. ■ Understand and review hand signals. 	Hard hat, safety glasses	All job functions
Sharp objects	<ul style="list-style-type: none"> ■ Wear cut-resistant work gloves when the possibility of lacerations or other injury may be caused by sharp edges or objects. ■ Maintain all hand and power tools in a safe condition. ■ Keep guards in place during use. 	Leather gloves	Installation of erosion control, extraction well construction, installation of piping, blower/flare construction, fence installation, drum handling, relocation of waste
Contact dermatitis	<ul style="list-style-type: none"> ■ Wear PPE to avoid skin contact with contaminated soil, plants, or other skin irritants. ■ Identify and review poisonous plants with workers. 	Tyvek coveralls; duct tape bottom of coveralls to boots or latex boot covers	Waste relocation, monitoring, sampling, piping installation, drum handling
High noise levels	<ul style="list-style-type: none"> ■ Use hearing protection when exposed to excessive noise levels (greater than 85 dBA over an 8-hour work period). 	Ear plugs	Site grading, waste relocation, installation of LFG and leachate piping, gas probe and well installation, fence construction, access road construction, blower/flare construction
High/Low ambient temperature	<ul style="list-style-type: none"> ■ Provide fluids to prevent worker dehydration. ■ Dress adequately for temperatures encountered. ■ Work schedule may be modified if ambient temperatures are below 20°F as measured by wind chill factor. 		All job functions

Table 4-1 (Continued)
General Job Safety Hazards and On-site Control Measures

POTENTIAL HAZARDS	HAZARD CONTROL MEASURES	PERSONAL PROTECTIVE CLOTHING AND EQUIPMENT	TASK BREAKDOWN
Slips, trips, falls	<ul style="list-style-type: none"> ■ Clear walkway work areas of equipment, tools, vegetation, excavated material, and debris. ■ Mark, identify, or barricade other obstructions. 		All job functions
Inhalation and contact with hazardous substances	<ul style="list-style-type: none"> ■ Provide workers proper skin, eye, and respiratory protection based on the exposure hazards present. ■ Review hazardous properties of site contaminants with workers before operations begin. 	Tyvek coveralls, nitrile gloves, latex or neoprene boots, respirators (see Section 7 of the HSP)	Sampling and monitoring, leachate tank installation, extraction well and gas probe installation, waste relocation, drum handling
Utilities	<ul style="list-style-type: none"> ■ Mark and locate underground utilities. This will be done by Contractor. ■ Flag overhead utilities as necessary. 		Extraction well and gas probe installation, site grading, blower/flare construction, fence installation, waste excavation
Excavation cave-in	<ul style="list-style-type: none"> ■ Comply with 1926.650, Subpart P. 		Leachate tank installation, pipe installation, waste excavation
Fires	<ul style="list-style-type: none"> ■ Eliminate sources of ignition from the work area. ■ Prohibit smoking. ■ Provide ABC (or equivalent) fire extinguishers for all flammable storage areas, powered cutting equipment refueling areas, fuel-powered generators, and compressors. ■ Store flammable liquids in well ventilated areas. ■ Prohibit storage and transfer of flammable liquids in plastic containers. ■ Enforce use of approved flammable liquid safety cans. ■ Post "NO SMOKING" signs. ■ Store combustible materials away from flammables. 		All job functions

Table 4-1 (Continued)
General Job Safety Hazards and On-site Control Measures

POTENTIAL HAZARDS	HAZARD CONTROL MEASURES	PERSONAL PROTECTIVE CLOTHING AND EQUIPMENT	TASK BREAKDOWN
Eye injuries	<ul style="list-style-type: none"> ■ Wear safety glasses. ■ Wear ANSI-approved sunglasses in sunny weather. 	Safety glasses (clear or tinted)	All job functions
Insect/Snake bites	<ul style="list-style-type: none"> ■ Review injury potential and types of snakes with workers. ■ Avoid insect nest areas, likely habitats of snakes, outside work areas. ■ Emphasize the "buddy system" where such injury potential exists. ■ Use insect repellant, and wear PPE to protect against sting/bite injuries. 	Long-sleeve shirts, long pants	All job functions

Table 4-1 (Continued)
General Job Safety Hazards and On-site Control Measures

POTENTIAL HAZARDS	HAZARD CONTROL MEASURES	PERSONAL PROTECTIVE CLOTHING AND EQUIPMENT	TASK BREAKDOWN
Electrical shock	<ul style="list-style-type: none"> ■ De-energize or shut off utility lines at their source before work begins. ■ Use double insulated or properly grounded electric power-operated tools. ■ Maintain tools in a safe condition. ■ Provide an equipment-grounding conductor program or employ ground-fault circuit interruptors. ■ Follow lockout/tagout procedures as applicable when working with electrical or mechanical equipment. ■ Use qualified electricians to hook up electrical circuits. ■ Inspect all extension cords daily for structural integrity, ground continuity, and damaged insulation. ■ Cover or elevate electric wire or flexible cord passing through work areas to protect from damage. ■ Keep all plugs and receptacles out of water. ■ Use approved water-proof, weather-proof equipment if exposure to moisture is likely. ■ Inspect all electrical power circuits prior to commencing work. 		Blower/Flare building construction
Work on or near surface water bodies	<ul style="list-style-type: none"> ■ If water is more than 2 ½ feet deep, wear U.S.C.G.-approved flotation devices. ■ Conduct work under the buddy system. ■ Use restraining systems if current is strong. 	Flotation devices	Surface water sampling, sediment sampling

Table 4-1 (Continued)
General Job Safety Hazards and On-site Control Measures

POTENTIAL HAZARDS	HAZARD CONTROL MEASURES	PERSONAL PROTECTIVE CLOTHING AND EQUIPMENT	TASK BREAKDOWN
Materials handling (concrete and bentonite products)	<ul style="list-style-type: none"> ■ Wear dust/filter masks when handling powdered concrete and/or bentonite materials. ■ Avoid dermal contact with these materials. 	Dust/filter mask (particulate) Gloves (leather or rubber)	Groundwater and gas monitoring well construction
Traffic	<ul style="list-style-type: none"> ■ If working in or near traffic areas, wear orange safety vests for visibility. ■ Be alert. ■ Use traffic control devices, if necessary. 	Orange safety vests with reflective strips	Construction of access roads
Handling heavy objects	<ul style="list-style-type: none"> ■ Observe proper lifting techniques. ■ Obey sensible lifting limits (60 lb maximum per person manual lifting). ■ Use mechanical lifting equipment (hand carts, trucks) to move large, awkward loads. 	Steel-toe boots	All job functions
Toxic/Explosive atmospheres	<ul style="list-style-type: none"> ■ Conduct air monitoring. ■ Install and maintain access controls. 	Respiratory protection	Sampling and monitoring, gas probe and extraction well installation, drum handling

Table 4-2
Exposure Limits
Remedial Action
H.O.D. Landfill
Antioch, Illinois
March 2000

COMPOUNDS	MEDIA	PEL ⁽¹⁾	TLV ⁽²⁾	STEL
Volatile Compound				
Acetone	L,S,LG	1000 ppm	500 ppm	--
2-Butanone (MEK)	L,LG	200 ppm	200 ppm	--
4-Methyl-2-pentanone	L	None established		--
2 Hexanone	L	100 ppm	5 ppm	--
Toluene	L,S,LG	200 ppm	50 ppm	--
Xylene	L,S,LG	100 ppm	100 ppm	--
Ethylbenzene	L,S,LG	100 ppm	100 ppm	--
Benzene	L,S,LG	1 ppm	0.5 ppm	5 ppm
Tetrachloroethene	L,LG	100 ppm	25 ppm	--
Trichloroethene	L,GW,LG	100 ppm	50 ppm	--
1,2-Dichloroethene	L,GW,LG	200 ppm	200 ppm	--
1,1-Dichloroethene	L,LG	100 ppm	100 ppm	--
Vinyl chloride	L,GW,LG	1 ppm	1 ppm	--
Methylene chloride	L,S,LG	25 ppm	50 ppm	125
Phenol	L	5 ppm	5 ppm	--
2,4-Dimethylphenol	L	None established		--
4-Methylphenol	L	5 ppm	5 ppm	--
Diethylphthalate	L	None established	5 mg/m ³	--
Naphthalene	L	10 ppm	10 ppm	--
Ethyl chloride (chloroethane)	LG	1,000 ppm	100 ppm	--
Other				
Hydrogen sulfide	LG, L, GW	10 ppm	10 ppm	--
Chromium	L,S,GW	1.0 mg/m ³	0.5 mg/m ³	--
Calcium	L,GW	15 mg/m ³	10 mg/m ³	--
Magnesium	L,GW	--	10 mg/m ³	--
Manganese	L,GW	5 mg/m ³	0.2 mg/m ³	--
Iron	L,GW	10 mg/m ³	5 mg/m ³	--
Aluminum	L	15 mg/m ³	2 mg/m ³	--

Table 4-2 (Continued)
Exposure Limits
Remedial Action
H.O.D. Landfill
Antioch, Illinois
March 2000

COMPOUNDS	MEDIA	PEL ⁽¹⁾	TLV ⁽²⁾	STEL
<i>Other</i>				
Potassium	L,GW	None established		--
Sodium	L,GW	None established		--
Carbon disulfide	GW,LG	20 ppm	10 ppm	100 ppm

Notes:

PEL Permissible exposure limit
PPM Parts per million
STEL Short-term exposure limit
TLV Threshold limit value
L Leachate
LG Landfill gas
S Soil
GW Groundwater
SD Sediment
mg/m³ Milligrams per cubic meter

Footnotes:

- (1) Permissible Exposure Limits (PELs) and Short-Term Exposure Limits (STEL), U.S. Department of Labor, OSHA.
(2) American Conference of Governmental Hygienists (ACGIH) Threshold Limit Values (TLV) for 1999.

If methane is inhaled in large quantities, dizziness, difficulty in breathing, and/or loss of consciousness may occur. If these effects are noted, the victim should be removed to fresh air and allowed to breathe freely until dizziness has passed. If the victim is unconscious and not breathing, artificial respiration should be initiated. A methane detector will be used to monitor ambient methane concentrations in areas where methane gas may be expected to occur.

4.1.2 Oxygen Deficiency

The microbial activity in the site, which produces methane gas, also uses available oxygen, thus producing an oxygen-deficient atmosphere. Oxygen-deficient atmospheres can initiate drowsiness, loss of mental capabilities, and even death within just minutes. Appropriate work areas at this site will be monitored on a continuous basis for oxygen-deficient atmospheres if they are suspected. Any areas containing 19.5 percent oxygen or less are unsafe, and project personnel should avoid such areas until the oxygen level is confirmed safe by the Site HSR.

4.1.3 Hydrogen Sulfide

Hydrogen sulfide (HS) has a strong rotten egg odor. The OSHA PEL for HS is 10 ppm, and it has a time-weighted average (TWA) of 10 ppm (ACGIH). HS affects the respiratory system, lungs, and eyes, and may cause dizziness, headache, and fatigue. It also produces olfactory fatigue, such that high concentrations or continuous exposure to low concentrations render it undetectable by the human sense of smell. A hydrogen sulfide detector will be used to monitor ambient HS concentrations in areas where HS gas may be expected to occur.

4.1.4 Contaminated Groundwater, Leachate, and Soil

Based on information presented in the RI, the following substances (see Table 4-2) may be present in the groundwater, leachate, and soil at concentrations that could represent hazards to unprotected project workers:

Volatile Organic Compounds (VOCs)

VOCs present in leachate and in landfill material may require staff to use respiratory protection. Standard hazardous waste site protocols require adequate respiratory protection to be worn in areas where breathing zone concentrations of VOCs are elevated above Permissible Exposure Limits (PELs).

VOCs with low PELs that are known or expected to occur at this site include benzene, vinyl chloride, phenol, and 4-methylphenol. Symptoms of exposure

to these compounds include headache; irritation to eye, nose, throat, and mucous membranes; weakness; muscle aches; abdominal pain; confusion; nausea; and respiratory and central nervous system effects. Ambient concentrations of VOCs will be monitored in areas where leachate and waste occur using a photoionization detector.

Semivolatile Organic Compounds (SVOCs)

The primary potential routes of exposure to VOCs are inhalation of gases and vapors, and skin contact with contaminated soil, liquids, or articles. The primary potential route of exposure to SVOCs is skin contact. Secondary routes of exposure would be inhalation of particles containing SVOCs under conditions of high airborne dust and accidental ingestion from contact with contaminants or contaminated articles. Symptoms of overexposure to organic compounds from acute and chronic exposures to high concentrations include eye, nose, and upper respiratory irritation, abdominal pain, headaches, nausea, vomiting, central nervous system depression, inebriation, incoherence, vertigo, weakness, numbness, tremor, low blood pressure, cardiac arrhythmia, shock, coma, dermatitis, bronchitis, liver damage, kidney damage, and lung damage.

SVOCs detected in leachate samples include the following:

- Phenol
- 2,4-Dimethylphenol
- 4-Methylphenol
- Naphthalene
- Diethylphthalate

Metals

The primary potential route of exposure to metals would be accidental ingestion from contact with contaminants or contaminated articles. A secondary route of exposure would be inhalation of particles containing metals under conditions of high airborne dust. Symptoms of overexposure to metals from chronic exposure to high concentrations include gastro-intestinal irritation; abdominal pain and cramps; nausea; diarrhea; headaches; tremor; eye, nose, and upper respiratory irritation; general weakness; insomnia; changes in skin or gum pigmentation; anemia; kidney damage; pneumoconiosis; asthma; coughing; and muscle aches. Arsenic and cadmium are potential occupational carcinogens.

4.1.5 Radiological Hazards

Based on information presented in the RI, no radiological hazards are anticipated at the site. If evidence of radiological hazards is encountered, work will be stopped until the RMT CHSM determines what health and safety procedures are appropriate and authorizes work to recommence.

4.1.6 Drums and Containers

Should drums need to be removed from excavations or trenches, an exclusion zone will be established around the excavation area. This zone will be surrounded by caution tape or temporary fencing.

Upon discovery of drums, a licensed waste removal and hauling firm will be contacted to conduct the drum removal. RMT staff will not conduct drum characterization or removal activities. All personnel assigned to support tasks in the exclusion zone during drum removal activities will wear Level C protective equipment at a minimum as described in Section 7 and will properly decontaminate when leaving the exclusion zone. A less stringent level of protection may be dictated by action levels as specified in the Health and Safety Plan (HSP) and determined by measuring the level of contaminants in the breathing zone with portable health and safety monitoring equipment. A particulate monitor, photoionization detector (PID) or flame ionization detector (FID), and a combustible gas meter (LEL monitor) will all be used for air monitoring during drum characterization or removal activities as dictated by Section 5.

4.2 Physical Hazards

4.2.1 Snakes, Ticks, and Other Insects

The H.O.D. Landfill and surrounding areas contain wetlands, grassy areas, and creeks. Due to these site features, snakes may be encountered at the work site. For protection against snake bites, personnel will be provided with snake boots or snake leggings, as appropriate.

Ticks may also be encountered at the site during warm weather. An appropriate tick repellent will be available on-site for personnel use. Staff are also encouraged to wear light-colored clothing, as this will make ticks more readily visible. A detailed discussion of lyme disease is included as Appendix B.

Site personnel who are allergic to insect stings will have a personal bee sting kit or equivalent on-site for emergency use.

4.2.2 Poisonous Plants

Due to the site features at the H.O.D. Landfill (wetlands, grassy areas, low brush, forested creeks) and the landfill's location, poison ivy, poison oak, and poison sumac may be encountered. The key to protection from these urushiol-containing plants is the ability to recognize and avoid the plants that carry the poison. A full discussion of identification, avoidance, and treatment of the effects from poisonous plants is included in Appendix C.

4.2.3 Excavation and Trenching

Excavation activities involve several risks to personnel involved in such activities. Personnel will refrain from entering excavations that would present a confined or otherwise permitted-entry space. Contractors performing excavation have the responsibility of complying with OSHA 29 CFR 1926 and any other applicable regulations pertinent to their expertise. At a minimum, the following requirements must be met:

- Before opening any excavation, efforts must be made, including utility company contact, to determine if there are underground utility installations in the area. Utilities will be located and supported if necessary during the excavation operations.
- The walls and faces of trenches 5 feet or more deep, and all excavations in which employees are exposed to danger from moving ground or cave-in, will be guarded by a shoring system, sloping of the ground, or some other equivalent means.
- In excavations that employees may be required to enter, excavated or other material will be effectively stored and retained at least 2 feet or more from the edge of the excavation.
- Daily inspections of excavations will be made by a competent person. If evidence of possible cave-ins or slides is apparent, all work in the excavation will cease until the necessary precautions have been taken to safeguard the employees.
- Trenches 4 feet deep or more will have an adequate means of exit, such as ladders or steps, located so as to require no more than 25 feet of lateral travel.
- Excavations that have to remain open at the end of daily operations must be appropriately marked off and signaled for hazard.

4.2.4 Utilities

Overhead or underground utilities, such as electric, gas, telephone, water, sewer, or drainage, in the project work areas will be located by contractors before the start of operations that require subsurface work or the moving and setup of heavy equipment

by the contractor. Information regarding the location of utilities will be kept at the field office for reference.

4.2.5 Heavy Equipment

Heavy equipment, such as drilling and earthmoving equipment, used on-site is under the control of the subcontractor, who is responsible for maintaining the equipment in good working order and operating it safely. Heavy equipment must have audible backup alarms in working condition. RMT personnel will not work near equipment that they judge to be unsafe because of deterioration, missing parts, obvious defects, or improper operation.

Operation of heavy equipment in areas with steep embankments or unstable ground will be avoided. If it is necessary to operate equipment in these areas, the subcontractor will make provisions for the safety of RMT personnel in the area.

4.2.6 Noise

Hearing protection must be worn by personnel when they are exposed to noise levels above 84 decibels (dBA). Heavy equipment, when in operation, generally results in exposure levels that exceed 84 dBA for personnel working at or near the equipment. A "rule of thumb" to follow is for personnel to wear hearing protection if they must raise their voices to be heard at arm's length. RMT personnel will comply with the RMT Hearing Conservation Program.

4.2.7 Temperature Extremes

The RD/RA is expected to progress throughout 2000. The time frame of the project will cause site personnel to potentially be exposed to both heat stress and cold stress.

Cold Stress

Persons working outdoors in low temperatures, especially at or below freezing, are subject to cold stress. Areas of the body that have a high surface area-to-volume ratio, such as fingers, toes, and ears, are the most susceptible to damage.

Protective clothing generally does not afford protection against cold stress. In many instances, it increases susceptibility due to a reduction in wind chill awareness and exposure to lower than perceived ambient temperatures.

Two factors influence the development of cold injury: ambient temperature and wind velocity. Wind chill is used to describe the chilling effect of moving air in combination with low temperature. A copy of the wind chill chart is included as Table 4-3.

Site personnel will be instructed on the signs and symptoms of cold stress and on the methods of preventing cold-related disorders. In general, the two major cold-related disorders are frostbite and hypothermia:

- *Frostbite* - Sudden blanching of the skin, progressing to skin with a waxy or white appearance that is firm to the touch, while the tissue beneath the skin is resilient. For treatment, bring the victim indoors, and warm the areas quickly in warm water. Never place frostbitten tissue in hot water, as the area will have a reduced heat awareness and such treatment may result in burns. Give the victim a warm drink. The victim must not smoke. Keep the frozen parts in warm water or covered with warm clothes for 30 minutes. The tissue will be very painful as it thaws. Then, elevate the injured area and protect it from physical injury. Do not allow blisters to be broken. Use sterile, soft, dry material to cover the injured areas. Keep the victim warm, and seek immediate medical care.
- *Hypothermia* - Hypothermia may be the greatest concern in the winter months and may be caused by exposure to freezing or rapidly dropping temperatures. The symptoms of systemic hypothermia are usually exhibited in the following stages:
 - Shivering
 - Apathy, listlessness, drowsiness, and (sometimes) rapid cooling of the body to less than 95°F
 - Unconsciousness, glassy stare, slow pulse, and slow respiratory rate
 - Freezing of the extremities

For treatment, keep the victim warm, and seek immediate medical care.

Each person will watch for personal signs of frostbite and hypothermia as well as signs in team members. If temperatures drop below 20°F, as measured by the wind chill index, thermal clothing will be required and field activities will be curtailed unless the activity is of an emergency nature.

Table 4-3
Wind Chill Chart
Remedial Action
H.O.D. Landfill
Antioch, Illinois
June 2000

Cooling Power of Wind on Exposed Flesh Expressed as Equivalent Temperature (under calm conditions)*

Estimated Wind Speed (in mph)	Actual Temperature Reading (°F)											
	50	40	30	20	10	0	-10	-20	-30	-40	-50	-60
	Equivalent Chill Temperature (°F)											
Calm	50	40	30	20	10	0	-10	-20	-30	-40	-50	-60
5	48	37	27	16	6	-5	-15	-26	-36	-47	-57	-68
10	40	28	16	4	-9	-24	-33	-46	-58	-70	-83	-95
15	36	22	9	-5	-18	-32	-45	-58	-72	-85	-99	-112
20	32	18	4	-10	-25	-39	-53	-67	-82	-96	-110	-121
25	30	16	0	-15	-29	-44	-59	-74	-88	-104	-118	-133
30	28	13	-2	-18	-33	-48	-63	-79	-94	-109	-125	-140
35	27	11	-4	-20	-35	-51	-67	-82	-98	-113	-129	-145
40	26	10	-6	-21	-37	-53	-69	-85	-100	-116	-132	-148
Wind speeds greater than 40 mph have little additional effect	LITTLE DANGER For less than 1 hour with dry skin. Maximum danger of false sense of security.				INCREASING DANGER Danger from freezing of exposed flesh within 1 minute.			GREAT DANGER Flesh may freeze within 30 seconds.				
	Trenchfoot and immersion foot may occur at any point on this chart.											

* Developed by U.S. Army Research Institute of Environmental Medicine, Natick, MA.

Heat Stress

The USEPA Standard Operating Safety Guides (1992) recommend that a heat stress monitoring program be implemented when employees are wearing impervious clothing and ambient temperatures are 70°F or above. The frequency of monitoring should increase as temperatures increase, and employees should be monitored after each 2-hour work period when ambient temperatures exceed 85°F. The following paragraph describes the monitoring program recommended by the USEPA. This program will be used by site personnel when ambient temperatures exceed 70°F.

Heart rate (HR) should be measured at the radial pulse for 30 seconds as early as possible in the resting period. The HR at the beginning of the rest period should not exceed 110 beats per minute. If the HR is higher, the next work period should be shortened by 33 percent while the length of the rest period stays the same. If the pulse rate is 110 beats per minute at the beginning of the next rest period, the following work cycle should be shortened by another 33 percent.

All personnel must be instructed on the symptoms of the main heat-related disorders and on the ways to recognize these disorders. These disorders and their symptoms are outlined below:

- *Heat rash:* Decreased ability to tolerate heat, chafing clothes, raised red vesicles on affected areas
- *Heat cramps:* Muscle spasms and pain in the extremities and abdomen
- *Heat exhaustion:* Shallow breathing; pale, cool, moist, clammy skin; profuse sweating; dizziness, and lassitude (weakness); fainting. Medical attention is warranted.
- *Heat stroke:* Red, hot, dry skin; no perspiration; nausea; dizziness and confusion; strong rapid pulse; coma. *This condition is life-threatening, and immediate medical assistance must be obtained.*

Because it may not always be feasible to follow the work/rest regimen outlined above, site personnel should take a break every 2 hours, at a minimum, and drink adequate amounts of nonalcoholic fluids. An average of 1 quart of liquid per hour is recommended. In addition, the following actions can help reduce heat stress:

- In extremely hot weather, conduct nonemergency response operations in the early morning and evening.
- In hot weather, rotate workers wearing protective clothing.

- Clothing should be permitted to dry during rest periods. Workers who notice skin problems should immediately consult the Site HSR.

4.2.8 Dust

Dust will be present at the site due to the operation of heavy equipment. A water truck will be employed to control the generation of dust. Air monitoring as discussed in Section 5 will be performed, and will aid in determining the amount of dust control needed at the site. Based on air monitoring results, level of protection modifications will be performed as described in Subsection 7.2.

4.2.9 Other Physical Hazards

Hazards related to sharp objects; slips, trips, and falls; and lifting heavy objects will be reduced by engineering controls. Employees will be required to wear safety glasses and gloves when working with sharp objects. To minimize slips, trips, and falls, walkways will be kept clear of equipment, tools, vegetation, excavated material, and debris. Also, obstructions will be clearly marked, identified, or barricaded. To minimize personal exposures, staff will wash exposed skin areas immediately after cessation of daily work activities. Finally, heavy lifting will be limited to 60 pounds per person and proper lifting techniques will be employed. Mechanical equipment will be used to move large, awkward loads.

Section 5

Air Monitoring

5.1 Purpose

Airborne contaminants will be monitored to ensure compliance with OSHA standards for on-site workers. In addition, National Air Quality Standards (NAAQS) will be utilized for particulate matter. Air monitoring equipment will be used to monitor VOCs in the work area in accordance with the RA Health and Safety Plan. It will be assumed that, as long as the VOC concentrations in the work zone are acceptable, then the ambient air quality off-site is acceptable in regard to VOC concentrations.

Air monitoring will be conducted to help ensure that the level of respiratory protection selected is adequate for the various field investigation work tasks. Changes in the level of protection may be required if significant changes in airborne contaminants occur. The breathing zone of all potentially exposed workers will be monitored whenever any of the following situations arise:

- Work begins at different portions of the site.
- New contaminants are noted.
- A new/different phase of work is started.
- Work is being performed in areas with obvious liquid contamination.
- Intrusive activities are being performed.
- Samples are being collected.
- Site staff exhibit symptoms of exposure to contaminants.

5.2 Monitoring Procedures

All monitoring equipment will be calibrated at the beginning and end of each work day. In general, calibration procedures involve using cylinders of calibration gases at known concentrations to calibrate the instrument. Calibration will be documented in the field logs. For instrument-specific calibration techniques, refer to manufacturers' calibration guidelines (copies of these guidelines will be kept at the site during field activities). When air monitoring is required, area air samples will be taken at the following locations daily, or when activities are undertaken that may indicate a change in the levels of airborne contaminants; and the time and the results of the monitoring will be recorded:

- Upwind of work areas to establish background air contaminants
- In support zone to check for contamination
- Along decontamination line to check that decontamination workers are properly protected and on-site workers are not removing protective equipment in a contaminated area
- At exclusion zone to verify level of protection and exclusion zone boundaries

5.3 Air Monitoring Equipment

- An Hnu or OVM photoionization detector (PID) with an 11.7 eV lamp (or equivalent) will be used by the Site HSR to monitor air quality at the work site. This will be done to assess the relative levels of organic airborne contaminants and to aid in site assessment.
- An Industrial Scientific Meter (or equivalent) will be used to detect any presence of explosive landfill gases and determine oxygen and hydrogen sulfide levels.
- Selected colorimetric tubes will be available for use in testing for the presence of specific toxic compounds, such as vinyl chloride, benzene, and phenol.
- A real-time aerosol monitor (MiniRam or equivalent) will be used to monitor airborne particulates.

5.4 Response to Airborne Contaminants

The following general guidelines will be used by the Site HSR as part of the decision-making criteria for establishing the appropriate level of protection. Note that increasing or decreasing levels of oxygen or combustible gases may indicate the presence of other substances (i.e., organic vapors in elevated concentrations).

- **Organic vapors** - If instrument readings are less than or equal to background, Level D protection as defined in Subsection 7.1 will be used. If instrument readings are greater than 5 instrument units above background, Level C protection as defined in Subsection 7.1 will be used. When instrument readings are greater than background with the organic vapor monitor, colorimetric tubes will be used to check for the specific presence of benzene, vinyl chloride, and phenol. If benzene levels are above 1 ppm, Level C protection will be used. If vinyl chloride levels are above 1 ppm, Level C protection will be used. If phenol levels are above 5 ppm, Level C protection will be used. If vinyl chloride levels approach 10 ppm or benzene levels approach 50 ppm, employees will be required to upgrade to Level B protection.
- **Combustible gas** - If instrument readings are above 25 percent of the LEL, operations will cease and workers will move to a safe area. The workplan will be re-evaluated, and engineering controls will be implemented to reduce levels below 10 percent of the LEL.
- **Hydrogen sulfide** - If instrument levels are above 10 ppm, operations will cease, and workers will move to a safe area. The workplan will be re-evaluated, and engineering controls will be implemented to reduce HS levels below 10 ppm.

- *Oxygen-deficient atmospheres* - If instrument levels are 19.5 percent oxygen or less, operations will cease, and workers will move to a safe area until oxygen levels are above 19.5 percent oxygen.
- *Airborne particulates* - If instrument readings are greater than 7.5 mg/m³ (safety factor of two), Level C protection as defined in Subsection 7.1 will be used. In addition, engineering controls (e.g., water) will be used to reduce levels. Refer to Subsection 7.2 for a further description of criteria required for modifications to the level of protection.

5.5 Documentation

Air monitoring readings will be recorded in field log-books. The names of personnel working in the area, the date, the time, the location, the task being conducted, the concentration levels, and any observations noted will be included.

Section 6

Site Control Measures

Site control minimizes the transfer of contaminants from and within the project site. Two contamination control methods are the establishment of work zones at the project site and the decontamination of field personnel and equipment.

6.1 Work Zones

Where necessary to prevent the spread of contaminants during the work, field personnel will delineate an exclusion zone, a contamination reduction zone, and a support zone. The exact locations of these zones will be determined at the start of the work depending on accessibility, traffic, support functions, and other parameters affecting location selection. At a minimum, the exclusion zone will include the area of potentially contaminated surface soil. All work zones containing open excavations will be marked by barrier tape and cones.

6.1.1 Exclusion Zones

Exclusion zones are areas where hazardous substances may be present based on available information. RMT personnel entering exclusion zones will be required to conduct the specified air monitoring and wear the required protective clothing as outlined in Sections 5 and 7. Entry and exit points will be established at the periphery of the exclusion zone.

6.1.2 Contamination Reduction Zone

The contamination reduction zone is a transition zone between contaminated, or potentially contaminated, and clean zones. It serves as a buffer to reduce the possibility of the support zone becoming contaminated. For all temporary exclusion zone sampling areas, the contaminant reduction zone will be located just outside of the temporary exclusion zones.

Decontamination procedures, outlined in Subsection 6.2, will be performed in the contamination reduction zones for all source areas. Personnel entering and exiting the contamination reduction zones will have one entry/exit check point at the support boundary of the contamination reduction zone.

Field personnel will wear the required personal protection while working in the contamination reduction zones. Before personnel enter the support zones, they will

remove protective equipment worn in the contamination reduction zones according to the procedures presented in Subsection 6.2.

The decontamination pad area will be constructed on top of the landfill near the existing access road and leachate manholes. Personnel decontamination areas will be located at proposed investigation points.

6.1.3 Support Zone

The support zone is a noncontaminated or clean area. Support zones will be located outside of the contamination reduction zones. Protective clothing is not required in the support zone. Support equipment, such as clean protective equipment, supplies, sanitary facilities, and drinking water will be located in these zones, which will include a support trailer or field vehicle. The location of the support zone and any support facilities will be determined based on the following factors:

- Accessibility
- Support services—electric power supply, roads, drinking water, etc.
- Wind direction

6.2 Decontamination Procedures

Whenever field personnel or equipment leave the exclusion zones, they must follow prescribed decontamination procedures.

6.2.1 Field Personnel

Protective outer garments will be removed and placed in disposable plastic bags at the perimeter of the contamination reduction zone. Level C and D decontamination procedures will be as follows:

- Before exiting the exclusion zone, remove gross soil and trash from boots and gloves using water and a brush.
- Remove outer gloves first, if used. Remove protective coveralls by rolling them inside out from the upper torso to the feet.
- Wash/Rinse impervious safety boots as appropriate before removing them in the contamination reduction zone. After removal, place boots in a plastic bag for next transport to the exclusion zone.
- For Level C work, first remove the respirator, then the spent cartridges or canisters to clean the face piece.
- Remove inner gloves if used.

- Staff will wash and dry their hands before leaving the contamination reduction zone, and place used paper towels in disposal bags.

The plastic bags containing the protective equipment waste materials will be stored on-site in a covered roll-off container. Any investigation-derived waste materials will be placed in one of the waste reconsolidation areas as shown on RD plan set Sheet No. 4.

Clean outer garments will be kept accessible to field personnel in the support zone. Water, soap, and paper towels will be kept in the support zone for both regular cleanup and emergency use.

6.2.2 Sampling In-field Measurement and Drilling Equipment

Subsections 4.9 and 4.10 of the FSAP address the decontamination procedures for equipment.

6.3 Other Site Personnel

"Other site personnel" refers to government employees, nonessential contractor personnel, local community representatives, and any other persons not actively involved in the RD/RA who enter the RA work zones. Other site personnel entering the facility to observe or participate in RA activities must report directly to the HSR upon reaching the source area under investigation.

The exclusion zone is the zone where hazardous substances are likely to be present. During field activities at the site areas, all personnel entering this zone must wear the required protective equipment and be currently trained.

If a fire, explosion, or toxic gas/vapor release occurs while visitors are present on-site, the visitors will immediately evacuate the area, using the evacuation plan as outlined in Subsection 8.2.

Section 7

Personal Protective Equipment

Protective clothing must be worn whenever the potential exists for employees to come in contact with, or to be exposed to, contaminated material. Worker personal protective equipment (PPE) for intrusive activities will begin at Level C protection based on the levels of contaminants found in leachate samples and on information available on potential health and safety hazards at the site. If monitoring data demonstrate that vinyl chloride levels are approaching 10 ppm or benzene levels are approaching 50 ppm, Level B PPE will be required for all employees working within the EZ. The determination for Level C respiratory protection for exposure to vinyl chloride below 10 ppm and benzene below 50 ppm is per 29 CFR 1910.1028 and 29 CFR 1910.1017. Other means of protection include using the buddy system and employing work limitations. Protection levels may be changed as determined by the site HSR based upon site conditions and air monitoring results (refer to Table 7-1).

7.1 Levels of Protection

Three levels of protection are specified in this HSP. Modified Level D will be the standard level of protection anticipated for the RA. Level B is the highest level of protection currently approved for RMT staff at this site. Level C is intermediate between levels B and D. As noted elsewhere, should site conditions indicate that Level B protection is required, all work will stop and site conditions and personal protection will be re-evaluated.

Personnel performing intrusive activities on-site will begin in Level C protection with air monitoring as defined in Section 5. Intrusive activities are defined as installing wells and gas probes; sampling groundwater, leachate, and LFG; excavating waste; regrading waste; installing LFG/leachate piping; and installing a leachate collection tank.

Modified Level D protection will consist of the following:

- Steel-toed, impervious work boots
- Hard hat (when overhead hazards exist or heavy equipment is in use)
- Hearing protection (if required as described in Subsection 4.2.6)
- Eye protection with permanently mounted side shields
- Disposable nitrile or Silvershield gloves, vinyl inner gloves (when contact with contaminants exists)

Table 7-1
Criteria for Changing Protection Levels

CHANGE	APPROVALS REQUIRED		
	HSR	HSC	CHSM
All nonintrusive work will be conducted under Level D protection at a minimum.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Intrusive work will be conducted in Level C. When RMT air monitoring indicates particulate levels below 7.5 mg/m ³ , and ambient PID levels are below 5 units above background, the HSR may downgrade to modified Level D. When instrument readings are greater than background with the organic vapor monitor, colorimetric tubes will be used to check for the specific presence of benzene, vinyl chloride, and phenol. If benzene levels are above 1 ppm, Level C protection will be used. If vinyl chloride levels are above 1 ppm, Level C protection will be used. If phenol levels are above 5 ppm, Level C protection will be used.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
When air monitoring indicates 10 ppm vinyl chloride or 50 ppm benzene, Level B protection will be used.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
When flammable gases are present at or above 10% of the LEL or oxygen levels are found at or below 19.5%, the site will be evacuated.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

- Tyvek® suits or impervious apron and sleeves (when the potential for skin or clothing contact with contaminants exists)

All intrusive activities will be started in Level C protection. Level C protection will consist of the following:

- Full-face, air-purifying respirators with a combination organic vapor/HEPA respirator cartridge
- Steel-toed impervious work boots
- Hard hat (when overhead hazards exist or heavy equipment is in use)
- Nitrile or Silvershield outer gloves
- Vinyl inner gloves
- Polyethylene-coated Tyvek® suits
- Hearing protection (if required as described in Subsection 4.2.6)

Level B protection will be worn when the highest level of respiratory protection is needed. Level B protection will consist of the following:

- Full-face, self-contained breathing apparatus (SCBA), or airline breathing apparatus with 5-minute escape bottle
- Steel-toed impervious work boots
- Hard hat (when overhead hazards exist or heavy equipment is in use)
- Nitrile or Silvershield outer gloves
- Vinyl inner gloves
- Polyethylene-coated Tyvek® suits
- Hearing protection (if required as described in Subsection 4.2.6)

7.2 Changes in Levels of Protection

The Site HSR may authorize a change in the level of protection based on an evaluation of actual field conditions after consulting with the HSC. Upgrades in protection will be at the HSR's discretion, while downgrades must be approved by the HSC (refer to Table 7-1). Should site conditions indicate Level B protection is necessary, all work will stop until site conditions and personal protection are re-evaluated or until the RMT Corporate Health and Safety Manager (CHSM) determines that Level B protection is to be implemented. If possible, Level B work will be avoided.

Air monitoring data and criteria may reveal the presence or possible presence of concentrations of air contaminants above acceptable levels for the type of respiratory protection being used. If

this occurs, the Site HSR will contact the HSC to evaluate the need to modify the level of protection required in a particular area and discuss the results of the evaluation with the PM. If changes in the level of protection are warranted, the Site HSR will inform field personnel and the RMT PM of the changes. Notifications will be made after the area has been appropriately secured.

7.3 Work Limitations

The following work limitations will apply to all field personnel working on-site:

- No smoking will be allowed in the exclusion or contamination reduction zones or additional on-site locations identified by RMT.
- No eating, drinking, or chewing gum or tobacco will be allowed in the exclusion or contamination reduction zones.
- Seat belts must be used in all moving vehicles.
- All personnel and equipment leaving the exclusion zones must be properly decontaminated prior to leaving the site. Personnel decontamination procedures are described in this document, and equipment decontamination procedures are described in the FSAP.
- When possible, on-site work will be limited to daylight hours. If work must be done at night, illumination levels will conform to OSHA Construction Standard 29 CFR 1926.56 and OSHA 29 CFR 1910.120.
- Work will be suspended if weather conditions are (1) significantly windy and dry, causing excessive levels of potentially contaminated particulates or waste to become airborne; or (2) if lightning and other storm conditions threaten worker safety.

7.4 Change-out Schedule for Air Purifying Respirator (APR) Cartridges

The following demonstrates the required change-out schedule for the use of air purifying respirators (APRs) with organic vapor cartridges:

- *Vinyl chloride* - Cartridges must be changed-out every 60 minutes. It should be noted that this calculation was made using a concentration of 10 ppm. If vinyl chloride concentrations exceed 10 ppm, APRs are not suitable for protection and RMT will require the use of SARs - Level B.
- *Benzene* - Cartridges must be changed at the end of every work shift. It should be noted that this calculation was made using a concentration of 50 ppm. If benzene concentrations exceed 50 ppm, APRs are not suitable for protection and RMT will require the use of SARs - Level B.

- Phenol and Airborne Particulate will be calculated once field air monitoring demonstrates the known concentrations using the Woods Math model. Note that, for respiratory protection against phenol, an organic vapor and particulate cartridge will be required.

Section 8

Contingency Plan

This contingency plan provides the emergency information needed should there be a sudden life- or health-threatening situation where work activities are being conducted. The provisions of the contingency plan are to be implemented immediately in the event of a fire, explosion, or accident that could threaten human health or the environment.

8.1 Emergency Contacts

Emergency contacts and telephone numbers for use in emergency situations occurring during field activities are detailed below. Telephone numbers for the contractor's project manager and HSR will be established once the RA contract has been awarded.

EMERGENCY CONTACT	TELEPHONE NUMBERS
Antioch Fire Department (ambulance) ⁽¹⁾	911
Antioch Police	911
St. Therese Area Treatment Satellite ⁽²⁾	(847) 356-6600
IEPA - Land Pollution Control Division	(217) 782-6761
IEPA Emergency Removal Unit	(217) 782-3637
Illinois Emergency Service Disaster Agency	(800) 782-7860
National Poison Center	(800) 942-5969
National Response Center	(800) 424-8802
CHEMTREC	(800) 424-9300
U.S. Environmental Protection Agency Emergency Environmental Response (Chicago) Hazardous Waste Hotline	(312) 353-2318 (800) 621-3191
Site Health and Safety Representative	to be established
RMT Project Manager Mark Torresani	(W) (608) 662-5374 (H) (608) 827-0071
RMT Midwest Region Health and Safety Coordinator Janeen McMurtrie	(W) (920) 830-0209 (Cell) (920) 858-9492 (H) (920) 982-9975
RMT Corporate Health and Safety Manager Shannon Posey	(W) (864) 236-9431 (H) (864) 898-3003 (Cell) (864) 787-7918

Notes:

(1) The Antioch Fire and Rescue Departments are separate organizations.

(2) Hospital map attached in Appendix D.
St. Therese Area Treatment Satellite
37809 North Route 59
Lake Villa, IL 60046

8.2 Emergency Procedures

If an emergency situation develops at the site, the discoverer will notify the HSR who will perform the following:

- Evacuate visitors and nonessential site personnel from the site.
- Notify any other affected personnel at the site.
- Call 911, and give the operator the location and nature of the emergency. The operator will notify the proper emergency services (fire, ambulance, police, etc.) for assistance. The HSR will answer all of the operator's questions and will let the operator hang up first.
- Determine and initiate (if necessary), in conjunction with emergency personnel, evacuation of residents in the surrounding community.
- Contact the HSC to inform him/her of the incident as soon as possible.
- Contact the RMT PM to inform him/her of the incident as soon as possible.
- Prepare a written summary report of the incident and an Initial Report of Incident form (Appendix E) for the RMT HSC as soon as possible, but no later than 24 hours, after the incident.
- Take appropriate corrective actions at the site prior to authorizing the continuation of work.

If the HSR is not available, the person discovering the emergency situation will initiate the above actions.

8.3 Medical Emergency

If a first aid or medical emergency occurs, the person should be transported to the St. Therese Area Treatment Satellite, 37809 North Route 59, Lake Villa, Illinois. A map illustrating the emergency route to the hospital is contained in Appendix D. Employees trained by the American Red Cross in first aid and CPR can administer first aid and CPR, if necessary. RMT employees will comply with the RMT Bloodborne Pathogen Program to properly protect themselves from potential contact with bloodborne pathogens, and to properly dispose of any waste generated.

8.4 Fire Emergency

RMT personnel and subcontractors are not trained professional firefighters. Therefore, if there is any doubt as to whether a fire can be quickly extinguished, site personnel will immediately notify the site HSR. The HSR will call the City of Antioch Fire Department, and staff will evacuate the site. The site HSR will ensure that fire extinguishers are present at the site and that they are in compliance with the rating specified by OSHA 1926. At a minimum, two on-site

staff members will have current training in fire extinguisher use. Portable fire extinguishers kept for on-site use will meet or exceed the requirements of OSHA 1926.

8.5 Spill Prevention and Containment

Staff will take precautions to avoid loss of sample media, decontamination fluids, sample preservative fluids, and other potentially hazardous materials. Please note that RMT staff will handle only relatively small quantities of these materials. All materials must be handled carefully. When applicable, plastic sheeting should be used to protect the ground surface from spillage. If a spill occurs, materials will be cleaned up immediately using hand tools. Wastes will be temporarily stored in buckets with lids or in drums prior to disposal at the on-site waste reconsolidation area. Personnel conducting cleanup activities should already be wearing PPE appropriate to the quantity and type of material affected, since they were in potential contact with it prior to the loss.

8.6 Emergency Equipment

Emergency equipment that will be available on-site with field personnel will include the following:

- First-aid kits/Bloodborne pathogen kits
- Eyewash (squeeze bottle)
- Fire extinguishers
- Five gallons of fresh water (for flushing of skin, general washing)

8.7 General On-site First Aid

The following discusses general on-site first aid procedures for exposure to contaminants on-site:

- *Contaminated material in eyes* – Wash with copious amounts of water for at least 15 minutes. Lift upper and lower lids occasionally. Seek medical attention immediately.
- *Contaminated materials that contact skin* – For organic materials, promptly wash area with soap or mild detergent and water. For corrosive materials, flush with water for at least 5 minutes. Do not rub. Check for signs of skin irritation. Seek medical attention if unusual appearance of skin or sensation is noted.
- *Contaminated materials that penetrate protective clothing* – Discard protective clothing and underlying clothing. Wash skin as described above. Confer with HSC in selection of new protective clothing.
- *Inhalation of contaminated air* – Move person to well ventilated area at once. If individual is not noticeably affected, and has no side effects after 15 minutes, returning to work is allowed, providing that staff are adequately protected from contaminants. If the individual

has not fully recovered, continue to monitor for 15 to 20 additional minutes and seek medical attention if necessary. Use artificial respiration if breathing has stopped. In such instances, seek medical attention after victim has resumed breathing. If possible, have someone seek medical attention while person is being resuscitated.

- *Ingestion of contaminated materials* - Flush mouth with water, being careful not to swallow. Contact local poison center (see telephone number in Emergency Response and Information section). When called for, induce vomiting and give fluids (preferably water) to drink. (DO NOT induce vomiting or give fluids to an unconscious person.) Seek medical attention promptly.

If, at any time, personnel feel fatigued, dizzy, nauseated, or experience headaches, they are to be moved to a well-ventilated area and allowed to rest for 15 to 30 minutes. If symptoms do not subside, seek medical attention. Should personnel exhibit symptoms of temperature stress, follow the guidelines for treatment contained in Subsection 4.2.7 of this plan.

8.8 Emergency Route

Appendix D contains a map of the emergency route to the hospital.

Section 9

Record Keeping

This section discusses the records that will be maintained as part of this Health and Safety Plan.

9.1 Training Attendance

A copy of each employee's certificate verifying the completion of the 40-hour Health and Safety Training for Hazardous Waste Sites is maintained in the employee's personnel file. Each employee retains the original certificate issued.

Site-specific health and safety plan review is documented by a sign-in sheet. The sign-in sheet is kept in the project file and is included as Appendix F.

9.2 Respirator Fit Test

For RMT personnel, copies of respirator fit testing forms containing the employee's name, the protocol used, the respirator tested, and the fit test results are distributed as follows:

- One copy to the employee
- The signed original filed in the personnel file

9.3 Medical Certification

RMT personnel receive periodic physical exams to determine their ability to wear a respirator and /or SCBA unit and perform required job functions. The physician conducting the examination must provide a certification of medical fitness for the tasks described and any work restrictions or limitations the employee may have. A copy of this certification and the employee's medical information is maintained in the employee's personnel file.

9.4 Air Monitoring Results

In-field measurements of airborne contaminant concentration levels will be recorded by the person making the readings in the field log book noting names of personnel potentially exposed, the date, the time, the location, the work task being performed, the concentration level measured, and any observations.

9.5 Chain-of-Custody and Hazard Communication

Material Safety Data Sheets (MSDSs) will be maintained on-site for all potentially hazardous materials brought to, and used, at the site (e.g., acid preservatives, bentonite clay, concrete,

calibration gases, etc.). The MSDSs will be kept in a folder in the support zone for reference. Staff will be current for Hazard Communication Training.

All samples will be maintained and shipped under chain-of-custody procedures; and waste materials will be manifested, as applicable. Staff will be updated in daily meetings on site conditions, including expected and observed concentrations of hazardous materials in solids, liquids, and fluids to be encountered during daily activities.

Section 10

References

Occupational Safety and Health Administration (OSHA) standards, 29 CFR 1910 and 1926, including 29 CFR 1910.120.

Montgomery Watson. 1997. Remedial investigation/feasibility study. H.O.D. Landfill, Antioch, Illinois. January 1997.

NIOSH/OSHA/USCG/EPA. 1985. *Occupational safety and health guidance manual for hazardous waste site activities*. October 1985.

RMT, Inc. 2000. Predesign investigations, groundwater. In preparation.

USEPA. 1992. Standard operating safety guides. Publication 9285.1-03, PB92-963414. Washington, D.C.: Office of Emergency and Remedial Response. June 1992.

USEPA Region V. 1998. Declaration for the record of decision, H.O.D. Landfill, Antioch, Lake County, Illinois.

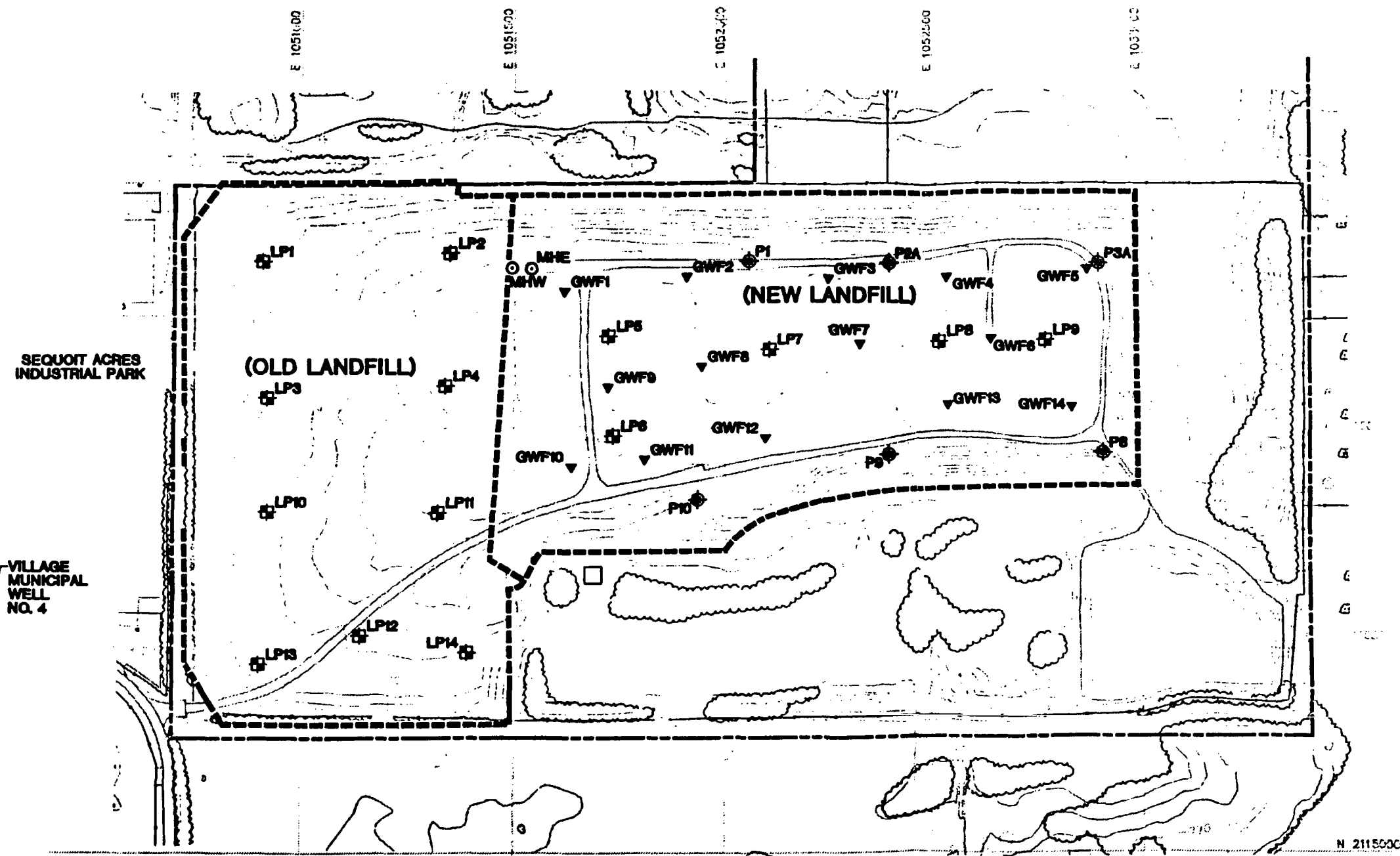
USEPA Region V. 1999. Unilateral administrative order for the H.O.D. Landfill Superfund Site, Village of Antioch, Lake County, Illinois.

Willman, H.B., E. Atherton, T.C. Buschbach, C. Collinson, J.C. Frye, M.E. Hopkins, J.A. Lineback, and J.A. Simon. 1975. Handbook of Illinois stratigraphy. Illinois State Geological Survey Bulletin 95. Urbana, Illinois.

Appendix A

H.O.D. Landfill Site

Drawing Name: J:\05314\07\53140705.dwg
 Operator Name: STORMERL
 Scale: 1"=300'
 Date: Wednesday, April 26, 2000
 Plot Time: 07:12:08 AM
 Attached Xref's: XREF1

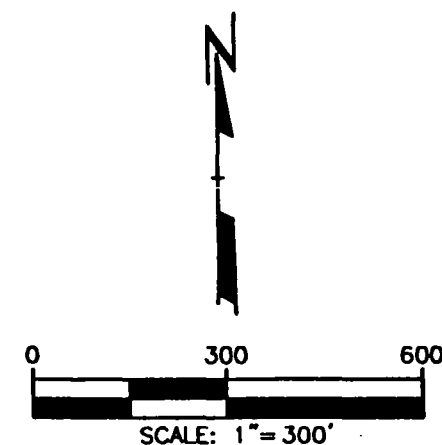


LEGEND (EXISTING)

- APPROXIMATE PROPERTY LINE
- - - APPROXIMATE LIMITS OF LANDFILLED AREA
- TOPOGRAPHIC CONTOUR LINE
- TREES, BRUSH
- BUILDING
- FENCE LINE
- MHW/ MHE LEACHATE COLLECTION MANHOLE WEST/ LEACHATE COLLECTION MANHOLE EAST
- ▽ GWF1 GAS FLARE LOCATION AND NUMBER
- ⊕ LP6 WARZYN LEACHATE PIEZOMETER LOCATION AND NUMBER
- ◆ P2A LEACHATE EXTRACTION WELL LOCATION AND NUMBER

NOTES

1. TOPOGRAPHIC SURVEY DATA FROM AERO-METRIC, INC.. DATE OF PHOTOGRAPHY: MARCH 4, 1999.



H.O.D. LANDFILL SITE

	DWN. BY: STORMERL
	APPROVED BY: JMT
	DATE: APRIL 2000
	PROJ. / 5314.07
	FILE / 53140705.DWG

Appendix B

Lyme Disease

LYME DISEASE

Lyme disease is an illness that, if not diagnosed and treated promptly, can cause serious problems involving the heart, joints, eye, and nervous system. Lyme disease was officially recognized in the United States in 1975 in children from Lyme, Connecticut. Lyme disease is transmitted to people and animals by the bite of the deer (bear) tick (usually in the Midwestern and eastern coastal states) or the western black-legged tick (usually in the western states), but other tick species are suspected carriers. Adult deer ticks are very small (about the size of a pencil point).

Signs and Symptoms of Lyme Disease

Lyme disease typically progresses through three stages.

Stage 1

In the earliest stage, people with Lyme disease may have any combination of the following signs and symptoms:

- ▷ Headache
- ▷ Chills
- ▷ Nausea
- ▷ Fever
- ▷ Spreading rash (ECM)
- ▷ Aching joints
- ▷ Fatigue

Without treatment, these signs and symptoms may disappear altogether, or they may recur intermittently for several months. The red rash, called erythema migrans or erythema chronicum migrans (ECM), usually appears within 3 to 32 days after a person is bitten by an infected tick. The rash is circular in shape and can attain a diameter of 2 to 20 inches. The center of the rash becomes clear, giving the characteristic appearance of a "bulls-eye." More than one lesion can occur on the body. Up to 30 percent of the people who have Lyme disease do not develop ECM lesions, making diagnosis more difficult. If Lyme disease is diagnosed during Stage 1, it is usually easily treated with antibiotics.

Stage 2

Weeks to months after the initial bite, some people may develop complications involving the heart and/or nervous system, such as varying degrees of heart blockage, meningitis, encephalitis, and facial paralysis (Bell's palsy). Painful joints, tendons, or muscles may also be noted during this stage of the disease.

Stage 3

Arthritis is the most commonly recognized long-term sign of Lyme disease. Research has shown that, even if Lyme disease was not diagnosed and treated promptly, people who eventually received appropriate antibiotic therapy had fewer relapses than those who were never treated.

Removing Ticks

The best way to remove a tick is to grasp it with tweezers as close to the skin as possible and gently, but firmly, pull it straight out. Do not twist or jerk to avoid leaving the head of the tick imbedded in the skin (which may then have to be surgically removed). Wash the bite area and your hands with soap and water and apply an antiseptic to the bite site.

LYME DISEASE

Lyme Disease in Domestic Animals

Lyme disease has been diagnosed in over 40 breeds of dogs. Signs in dogs may include various combinations of the following:

- Fever of 103-106°F
- Severe pain
- Sudden onset of lameness
- Poor appetite
- Intermittent lameness for weeks or months
- Signs of illness observed within a few days or up to several months after initial exposure

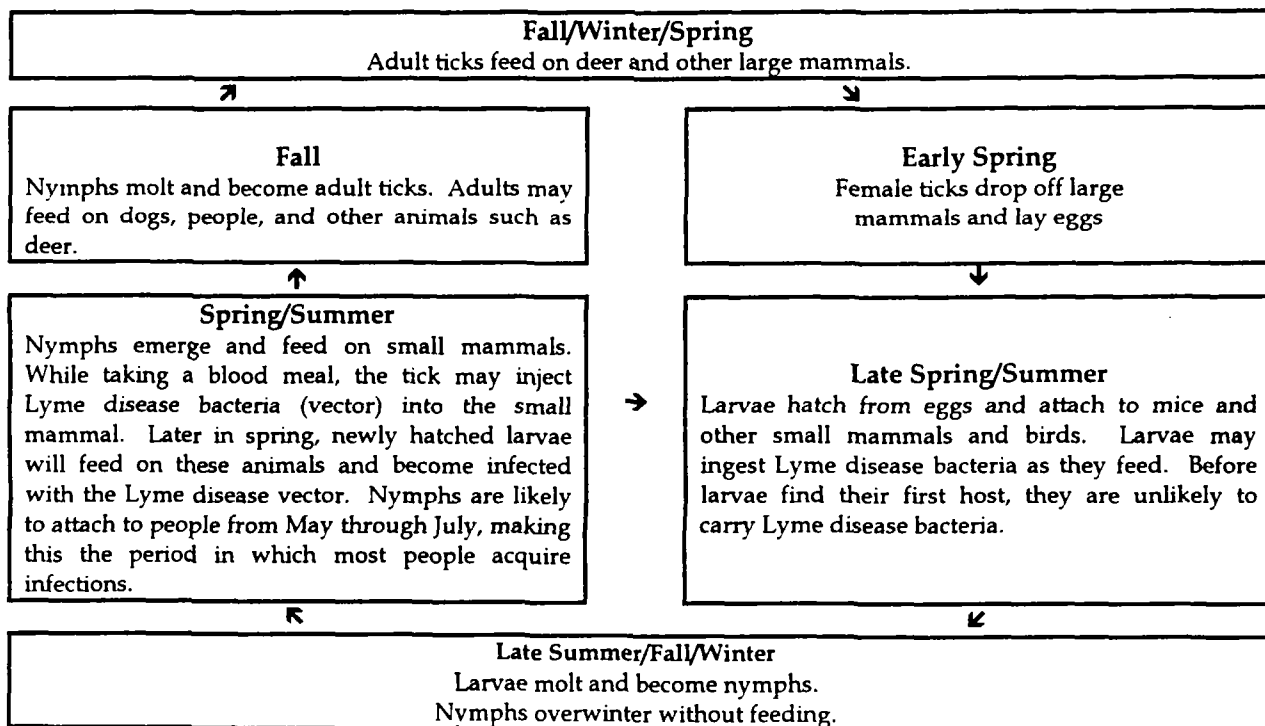
Cattle and horses can also contract Lyme disease. They may exhibit a variety of signs, including fever and lameness.

Prevention

By routinely checking for ticks (adults as well as other life stages) after being outdoors, you can remove them *before they embed and have the chance to transmit Lyme disease.*

1. Conduct thorough tick checks on yourself, your children, and your pets after spending time outdoors.
2. Wear light-colored clothing. This may not deter ticks, but it makes them easier to find.
3. Ticks wait atop of grasses and other vegetation until something brushes against them.
4. Apply tick/insect repellent to pants, socks, and shoes as well as skin (30% DEET and permethrin are recommended).
5. Always walk in the center of mowed trails to avoid brushing up against vegetation.

Tick Life Cycle



Paraphrased from "Lyme Disease in Wisconsin: An Update" published by Wisconsin DNR and Dept. of Health and Social Services.

Appendix C

Poisonous Plants

Poisonous Plants

Poison ivy, poison oak, and poison sumac are the three most common urushiol (poisonous, irritant liquid)-containing plants in this country. Each year, they cause almost 2 million cases of a dermatitis that can be extremely distressing. Urushiol poisoning is the greatest single cause of Worker's Compensation claims in the United States.

The common poison ivy (*Toxicodendron radicans*), in six subspecies, thrives from southern Maine to Florida and as far west as Nebraska, Kansas, Oklahoma, and Texas. It can also be found near the Mexican border in eastern Arizona and western New Mexico. Humid weather and rich, damp soil favor its spread; but it can persist in what might seem rather daunting circumstances.

Rydberg's poison ivy (*Toxicodendron rydbergii*) is the most northerly ranging species of poison ivy and can generally be found in moist habitats in the northern and mountain states.

Poison oak is a woody plant that grows in dry barren areas from southern New Jersey to northern Florida and as far west as Oklahoma.

Pacific poison oak, as the name implies, is found in California, Oregon, and Washington. It has adapted to a wide range of habitats from rich loam soil to rock crevices and can be found from sea level to about 5,000 feet above sea level.

Poison sumac is usually found along the margins of swamps and bogs, where the soil is acid and wet. The shrub can grow to 20 or more feet high and is never found in the vine-like form of its ivy relatives. Poison sumac shrubs in dry soil are stunted but are just as poisonous as the larger version. They look harmless and poison the unwary.

The key to protection from urushiol is the ability to recognize and avoid the plants that carry the poison. The folk wisdom "Leaflets three, let it be" is a good rule for the inexperienced, but alert those assigned to work near any vegetation. All the plants mentioned except poison sumac have three-leaflet stems. The two-side or lateral leaflets appear to be symmetrical and they grow close to the stem, while the end leaflet is distinct and alone. Poison sumac can have 7, 9, 11, or 13 leaflets; these also grow in symmetrical pairs close to the stem, except for the one at the end. The odd numbers between 7 and 13, the symmetrical pairing, and the isolated end leaflet should allow the worker to be able to group poison sumac with its evil relatives and avoid them all.

In the rare instance where contact with urushiol-bearing plants cannot be avoided, the worker must take extreme precautions to prevent direct or indirect contamination. Ordinary work trousers tied at the boot mouth, a long sleeved shirt and long gloves will usually protect against direct contamination of the skin, but protection against indirect contamination requires great vigilance. A casual wipe of a contaminated glove against the head can cause the characteristic rash and a breath of smoke from burning urushiol-containing trash can inflame the mouth, nose, throat, and lungs. Clothing and tools can remain contaminated for years after being in contact with a urushiol-producing plant. Washing contaminated clothing and contaminated surfaces with large amounts of cold water is the easiest way to get rid of urushiol.

(Taken from: Mine Safety and Health Administration - Health Hazard Information)

Appendix D

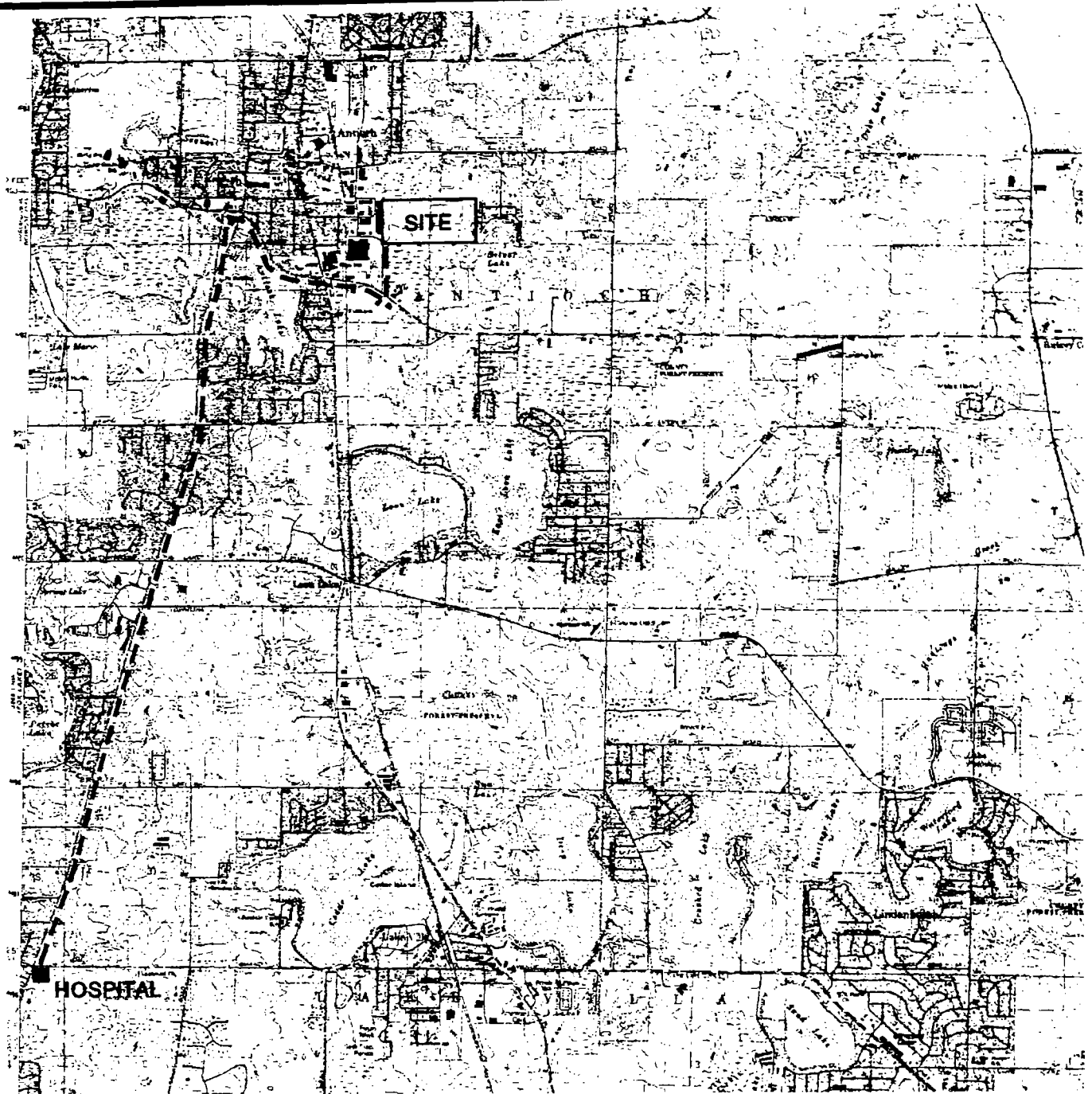
Hospital Emergency Route Map

07:08.2528 AM
Wednesday, April 26, 2000

Plot Time:
Plot Date:

Operator Name: STORMERL
Scale: 1"=1'
Dwg Size: 43497 Bytes
Attached Xref's: No xref's Attached.

PLOT DATA
Drawing Name: J:\05314\07\53140701.dwg



DIRECTIONS FROM SITE TO HOSPITAL

TAKE McMILLAN ROAD SOUTH TO 173. TAKE 173 WEST (RIGHT) TO ROUTE 59. TAKE ROUTE 59 SOUTH (LEFT) APPROXIMATELY 4.5 MILES TO ST. THERESE AREA TREATMENT SATELLITE ON EAST (LEFT) SIDE OF ROUTE 59 JUST SOUTH OF ROUTE 132 (GRAND AVENUE). USE SOUTH ENTRANCE.

HOSPITAL ADDRESS

ST. THERESE AREA TREATMENT SATELLITE
37809 NORTH ROUTE 59
LAKE VILLA, ILLINOIS 60046
TELEPHONE: (847)356-6600

(NOT TO SCALE)

HOSPITAL EMERGENCY ROUTE MAP

**H.O.D. LANDFILL
ANTIOCH, ILLINOIS**

RMT^{INC}

DWN. BY:	STORMERL
APPROVED BY:	JMT
DATE:	APRIL 2000
PROJ. #	5314.07
FILE #	53140701.DWG

APPENDIX B D

Appendix E

Incident Forms



Health & Safety Plan Initial Report of Incident

1. Type of Incident				
<input type="checkbox"/> Injury/exposure only <input type="checkbox"/> Property loss only <input type="checkbox"/> Injury and property loss <input type="checkbox"/> Reportable incident without injury or property loss				
Project Number:	Project Name:	Date of Incident:	Time:	<input type="checkbox"/> AM <input type="checkbox"/> PM
Incident Location:				
Name(s) of witnesses to incident, if any:				
If incident caused death or serious injury, this report must be called in to the Health & Safety Director and Human Resources Manager <i>immediately!!!</i>				
2. Injury/Exposure For any injury, a "First Report of Injury" form must also be completed. This is available from Human Resources.				
Injured employee's full name:				Did injured see a doctor? <input type="checkbox"/> Yes <input type="checkbox"/> No
Name and address of treating doctor (and hospital, if one was used):				
Describe affected body part and the type/degree of damage or exposure:				
3. Incident Description and Analysis				
Give detailed description of incident (attach additional pages if necessary):				
Provide an explanation if the incident was associated with the following:				
Job factors:				
Personal factors:				
Unsafe conditions:				
Unsafe practices:				
Other:				
Have similar incidents occurred before? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Don't know				
Why?				
4. Property Damage/Loss/Theft				
Exactly what was damaged, lost, or stolen?				
Was this reported to police? <input type="checkbox"/> Yes <input type="checkbox"/> No If yes, list departments involved:				
Describe amount of damage/lost/theft:				
5. Action Items				
List actions which could be taken to prevent the occurrence of this incident in the future, or to minimize the effects of future incidents.				
6. Signature				
Name of person completing this form:		Office Location:	Date:	
Signature of person completing this form:				
Send this report to the Health & Safety Coordinator who will provide copies to the Corporate Health & Safety Manager, Project Manager, Department Manager, and/or Human Resources Manager, as required.				
This report does not replace a Worker's Compensation (First Report of Injury) or Insurance Claim form which may need to be completed for Human Resources or Loss Prevention.				Office Use Only Reportable: <input type="checkbox"/> Yes <input type="checkbox"/> No

Appendix F

Sign-in Sheet

Acknowledgement Statement:

I have reviewed the Hazard Assessment and Site Health and Safety Plan. I hereby acknowledge that I have received the required level of training and medical surveillance, that I am knowledgeable about the contents of this site-specific Health and Safety Plan, and that I will use personal protective equipment and follow procedures specified in the Health and Safety Plan.

Signatures of Site Personnel (required):

_____	Date: _____
_____	Date: _____
_____	Date: _____
_____	Date: _____
_____	Date: _____
_____	Date: _____